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N. The figures in the body of the Map refer to the Sections into which the County is divided in the report. The various shades of the Green colour describe the temperate mixed Soil. The Brown colour the heavy mixed Soil, and the Yellow colour the light mixed Soil.



GENERAL VIEW  
OF THE  
AGRICULTURE  
IN THE COUNTY OF  
ESSEX;

WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

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BY  
CHARLES VANCOUVER.

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DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE  
AND  
INTERNAL IMPROVEMENT.

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LONDON:  
PRINTED BY W. SMITH.

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M.DCC.XCV.

ADAMS 103.11

## TO THE READER.

*IT is requested that this Paper, as well as the former account of the agricultural state of Essex, by the M<sup>s</sup>. GRIGGS of Hill-House, may be returned to the Board of Agriculture, at its Office in London, with any additional remarks and observations, which may occur on the perusal, written on the margin, as soon as may be convenient.*

*It is hardly necessary to add, that the Board does not consider itself responsible for any fact or observation contained in this Report, which, at present, is printed and circulated, for the purpose merely of procuring farther information, respecting the Husbandry of this district, and of enabling every one, to contribute his mite, to the improvement of the country.*

*The Board has adopted the same plan, in regard to all the other Counties in the united Kingdom; and will be happy to give every assistance in its power, to any person, who may be desirous of improving his breed of Cattle, Sheep, &c. or of trying any useful experiment in husbandry.*

LONDON, FEBRUARY, 1795.



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## INTRODUCTION.

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IN collecting the necessary information for the following Report, the surveyor has been regulated by the same line of conduct by which he was governed in the Agricultural Survey of the County of CAMBRIDGE. By these means, the facts occurring in each parish are distinctly ascertained, and by the Table and Journal of each respective district, are brought compleatly into view ; and are made to exhibit, by the average of their aggregate amount, the general produce, and other circumstances respecting the present state of the agriculture, and the probable improvement of such district. In doing this, particularly in the first part, or journal of the report, every possible care has been taken to free it from those dull and tedious repetitions so frequently occurring on a subject incapable of change or variation ; and where at the same time, it is so indispensable to preserve and convey that clear and minute description of the soil and substrata, so material to the accurately understanding and rightly judging of the subject, as well in respect to the agriculture of any particular parish, or district, as to that of the stock and husbandry of the county at large.

The

The rural economics of this county with all their excellencies and defects, are faithfully detailed in the journal; and the general observations which follow thereupon, form the second part of the report, included in which, is a brief summary of the evils and defects under which the agricultural improvement of the county at present labours; distinguished under the several heads, of such as are incurable by human means; of those that may be removed by individuals, or the co-operation of neighbours; and of those again which cannot be removed, or in any wise alleviated, without the power and authority of parliament.

PART

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## PART I.

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### Journal.

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#### DISTRICT THE FIRST.

*Temperate mixed soil, lying upon a gravel; a sand, a blue and white chalky clay; a brown tender clay, or brick earth; and a tough strong clay, or tile earth.*

THE soil of the land lying west, north and east of the village of HELION BUMSTEAD, is a strong brown earth, of a good staple, on a blue and white chalky clay. To the south, the soil is of a more light and gentle nature, of a fair staple, upon a gravelly loam. Proceeding thence to HAVERILL and the hamlet of HAZARD END, the land for the depth of two furlongs, northeasterly and southwesterly of the brook, consists of a well stapled gravelly loam, upon a chalky gravel. Ascending the hill on both sides the brook, and extending thence in the above directions, the deep tender soil is gradually lost, in a thin wet stiff loam, upon a blue and white clay. The open common field land, compared with such of the inclosures as are precisely of the same nature, is from its peculiar circumstances considered of very inferior value.

Two crops and a fallow, is the generally prevailing system of husbandry; though the most intelligent farmer, will sometimes vary this mode, by sowing clover with the barley, which stands as an etch crop in the place of oats; this is either fed with sheep, or mown for hay; it lies for sheep food during the next fallow season, is broken up in the spring following, and planted with peas or beans; kept well hoed during the summer, and succeeded by wheat in the etch, or second crop field; it is then fallowed for barley: this practice is found to answer extremely well, though in the open common fields, it must ever be confined to the flock masters, otherwise their sheep would feed upon the green wheat until Lady-day, and spoil the crop.

Weld is occasionally cultivated for the manufacture of checque and fustian; its culture is simply that of transplanting from the seed beds at Midsummer; stands all winter, and is the summer following, when in full bloom, cut, dried, and laid up for use. The soil it favours most, is a stiff strong loam, moderately moist, but not wet. The price from four-pence to eight-pence per stone. The manufacture abovementioned is carried on to a considerable extent, but the effect it has had on the agriculture of this parish, by inviting a great number of settlers, has been so far unfavourable, as to occasion a considerable increase in the poor's rates within the last five years.

The land lying south-west, west, and northerly of the village of STURMER, is a heavy strong soil, of a good staple, upon a blue, or on a brown clay. North-easterly from the village, and binding upon the brook, is a well mixed gravelly loam, of a good staple, upon a gravel. Proceeding thence south-east, and northerly, on the slopes of the hills that rise on each side from the brook, the soil increases in its strength, and rests upon a chalky clay. The land

land binding upon the gravelly soil, lying north-westerly of the brook, corresponds with that described in the south-east, or opposite quarter.

The copse wood or undergrowth here, is more valuable than is the like produce in the preceding parish, arising from the care and attention which is paid to the undergrowth when young, and to the cultivation of ash for hop poles.

Turnips are sown, and answer extremely well upon the light gravelly soils. Cabbages are here a new culture. For this crop the land is ploughed into four furrow ridges, in the furrows between which, are laid about 400 bushels of long dung per acre. The dung is then ploughed under, making the furrows the ridges, on the tops of which, and at a yard apart from each other, about a quart of water is poured down; thus marking out where the plants are to be set; this operation is followed by a boy placing the plants ready for the dibber, who makes the holes, and presses the mould very close to the roots of the plants; a second watering immediately takes place, pouring the like quantity of water on each plant. The planting is generally performed by a gardener, as much depends on the plants being properly put into the ground; ploughing the intervals, hoeing, and moulding up the plants, follow in course. The drum-head cabbage is preferred; and the plants are always taken out of the seed bed, for immediate transplantation into the field.

The harvestmen are not boarded by the farmers here, as in most other places, but in lieu thereof, they each receive four bushels of malt and two lbs of hops, from which about forty gallons of strong nourishing drink is usually drawn: They also receive one shilling each on hiring, and five shillings per acre, for cutting and inning the whole crop; apportioning about thirteen acres to each man. The carts,

horses, and drivers, are provided by the farmers; and when the weather proves favourable, and the corn a fair standing crop, a man will cut, and in, sixteen acres of winter and summer corn in the course of a month; as was the case in the year 1793; previous to which time, and when the harvestmen were boarded by the farmers in the usual manner, twelve acres per man were rarely known to be harvested in the same time, from the same land.

The soil in general in the parish of BIRDBROOK, is extremely various; but the most striking difference is found along the course of the river Stour, where, from a quarter to half a mile in width, a well stapled gravelly loam prevails. South and rising towards Whitley, the land becomes heavier, and forms upon the highest levels, a close cold earth, upon a chalky clay, below which clay at irregular depths, are found veins of pure blue clay, and some gravel. Thence southerly, and descending towards the principal branch of the river Colne, a more gentle soil is discoverable upon a brown clay.

Soot has been tried, and found effectual against moss, in Baythorn Park: it is applied in November, at the rate of forty bushels per acre, the first cost of which is 6d. per bushel.

The land in this parish is particularly favourable to the growth of oak timber; several fine standards are detached through the pastures, one of which measures at five feet from the ground, eleven feet nine inches in circumference. Poplar, maple and plane tree are common to the soil. In Baythorne Hall garden, by the side of the river Stour, a clump of alders justly excite notice and admiration. The largest of these trees (and they run tolerably even) at five feet from the ground, is seven feet four inches in circumference, and is in height from thirty to thirty-five feet of clear

clear timber. Some excellent hawthorne hedges have been lately raised, by planting one row only at six inches asunder, rather than two rows nine inches or a foot apart. These hedges have not been cut down, nor do they require it, to thicken their bottoms, as they are at this time a complete protection against hogs, and in other respects form a beautiful and effectual fence. Nothing can be more evident, than that a row of plants set thus . . . . . six inches distant from each other, must form a more complete and effectual fence at the bottom, than an equal number planted thus . . . . . at a double distance, and occupying the same length, but a greater depth of ground upon the hedge row.

As the country rises towards RIDGEWELL, the higher parts of that parish consist of a deep, tender soil, upon a chalky and a brown clay; but on descending towards Tilbury, and the head branches of the river Colne, the clay is lost; and in the low grounds, a light gravelly loam is found, of a kindly nature, upon a gravel. Proceeding eastward a tender hazel coloured loam, of a good staple, upon a white chalky clay, prevails generally through the parish of TILBURY, where, upon the sides of the hills, a few wet sandy and gravelly spots appear, but which in their present state are inapplicable to the culture of turnips. The lands abutting upon the river Stour, from three quarters to a mile in width, belonging to the parishes of ASHEN, OVINGTON, and BELCHAMP ST. PAUL's, are a light sandy loam, of a good staple, in which there is a mixture of some gravel, upon a brown tender clay and gravel. Thence southerly, and as the country rises, a close heavy soil is found, but of a good staple upon a chalky clay.

Hollow draining at a pole apart, and at an expence of about three pound per acre, has been practised with great success

success in these parishes; and in those of BELCHAMP OTTEN and BELCHAMP WALTER, where in general the soil is an heavy moist grey loam, upon a blue and a white chalky clay. This latter has been applied with very good effect upon some of the lighter lands in these parishes, at the expence, and in the proportion following per acre, *viz.*

Stubbing or raising 40 loads (containing 40 bushels each)	
at 2d. per load	0 6 8
Filling, at 1d. per load	0 3 4
Spreading, at 6d. for every score loads	0 1 0
	<hr/>
Allowance for small beer at 2d. in the shilling on the above	0 1 10
To four horses, two tumbrrels, and one driver, at fifteen shillings, allowed to carry through these parishes twenty-four loads per day, will equal for carting per acre	1 5 0
	<hr/>
To this add the usual expence of hollow draining per acre	1 17 10
	<hr/>
Making in the whole £.4 17 10	

The land in the parishes of PENTLOW, FOXEARTH, LYSTON and BORLEY, which abuts upon the meadows that lie along the river Stour, is of a deep rich tractable nature, upon a tender clay and gravel; this character continues for about a mile southward of the river. Ascending the higher country, and proceeding towards the Belchamps, the soil becomes of a heavier nature, more moderately stapled, and lying upon a chalky clay. As the country falls towards the south (forming the valley through which the road runs from Clare to Sudbury) the soil improves in its staple, becomes more free and gentle, and less difficult to manage, either wet or dry. The little parish of Lyton very justly claims

claims the preeminence, being by far the best tract of land in this part of the county.

The heavier parts of the parish of BULLMER consist of a well mixed loamy soil, upon a brown and a white chalky clay; and a smaller portion of a lighter nature, upon a gravel. South, and extending towards Wickham St. Paul's, a wet cold thin soil prevails, lying upon a yellow, or woodland clay: this has been much improved by hollow draining, at a rod apart, and at the expence of 50s. per acre 2 10 0 First cost of eight waggon loads of chalk, con-

taining 90 bushels each, at 9s. per load is - 3 12 0 To this add filling, carriage, and spreading, and

allowance for beer, 8s. per load	- - -	<u>3 4 0</u>
		per acre £.9 6 0

an expence which would be continued upon a much larger scale, were it not for the uncertain tenure of the tythes.

Upon the heavy lands in this neighbourhood, clover is sometimes sown with barley, but the frequent failure of the plant in the spring following, prevents the culture of that valuable grass from being more general. The wheat from the clover leys is esteemed much superior to that sown upon the fallows; where, upon the deep rich lands, along the course of the river Stour, it is very subject to the mildew and to be root fallen: the clovers however, are not so liable to mis-plant, or to perish there, as on the heavier lands, which are generally ploughed, in four furrow ridges.

Those lands which border upon the meadows in the parish of MIDDLETON, form a well mixed soil, of a good staple, upon a sandy loam and a chalk; but, as the country rises from the river, and extends towards Great

Henny,

Henny, and Bullmer, the pure chalk is lost, and a heavy, cold, soil prevails upon a chalky clay.

The valuable meadows along the river Stour, are much injured by the pending up of the water by the mill dams.

Proceeding southward from Middleton, the country is broken into hills ; but through the parishes of GREAT HENNY, TWINSTEAD and LAMMARSH, it is enriched with some fertile vales, and a large portion of excellent turnip land ; the understrata of which, are a red and white sand, and gravel, interspersed with several small veins of brown clay. Crossing the valley, and ascending from Lammarsh, to ALPHANSTONE, the land changes to a heavy cold thin soil, upon a red clay, or tile earth ; a brown clay, or brick earth ; a blue and white chalky clay ; and in some places, a gravel. The stiff heavy cling soil, generally prevails through this parish, and often requires seven or eight ploughings, before it is brought into a proper state to receive the seed of wheat, barley, or even of black oats.

This variety of understrata, in a great measure forbids a regular and even course of hollow draining, and has occasioned the use of the land fall plough, which operates in bringing the field to a more uniform level, by filling up the small hollows with the earth removed from the higher ground : by this means the open drains are cut upon a more evenly inclined plane, and the surface water is carried away with a greater, and more regular certainty : the earth however, from the want of hollow drains, still retains a considerable quantity of water, which frequently perishes the seed ; and by the chill it produces (even in the most favourable seasons) greatly retards the powers of vegetation.

An hazel coloured strong soil upon a red loam, under which, at the depth of about eighteen inches, is found a blue and white chalky clay, intermixed with a few veins of gravel; is the prevailing character of the soil and substrata in the parishes of WICKHAM St. PAUL's, GESTINTHORPE, and LITTLE YELDHAM. Adjoining the village of GREAT YELDHAM, the soil, a tender loamy gravel, of a good staple, upon a gravelly loam, which gradually disappears towards Little Yeldham on the east, and Toppersfield on the west, where the land becomes of a colder nature, and is much to be improved by hollow draining.

East, and south of the town of CASTLE HEDINGHAM, the soil of which forms a light coloured loam of a fair staple, a brown clay, has been much improved by hollow draining, and by the application of white chalky clay, at the expence and in the proportion following per acre :

Four score loads of clay, filling and spreading,								
at 5s. per score	-	-	-	-	-	-	1	0
Allowance for beer upon ditto	-	-	-	-	-	-	0	3
Five horses, four days work, at 2s. 6d. per horse								4
per day	-	-	-	-	-	-	2	10
Wear and tear of two tumbrells, four days, at 6d.								
each per day	-	-	-	-	-	-	0	4
Driver, four days work, including beer, at 1s. 6d.								
per day	-	-	-	-	-	-	0	6
								0
							L	4
							.	3
								4

To the northward of the town, the land becomes sufficiently light and dry to admit of the turnip husbandry. On the west, the parish is bounded by the river Colne; along whose course is a considerable tract of meadow and rich hopland; the culture and value of the produce per acre, of the latter, taken on an average of ten years, is as follows :

<i>The Hop Ground per Acre.</i>	<i>Dr.</i>	<i>Per contra</i>	<i>Cr.</i>
To interest accruing annually upon the first cost of the stock of poles, viz. 2,500 at 40s. per hundred, being the value of the poles at the third years growth of the plant	2 10 0	By 7 cwt. of hops at 6l. 3s. per cwt. being the average produce and value per acre of the Castle Hedingham hops for the last ten years	— 43 1 0
To the annual supply of 400 new poles at 40s. per hundred	8 0 0	By 350 refuse poles at 6s. per hundred	— 1 1 0
Labour by contract, including digging, dressing, poleing, tying, hoeing, moulding, raking, laddering, planting dead hills, and barrowing dung	3 10 0	By old benes	— 0 2 6
Manure	— — 3 0 0	By profit in selling bags as hops	— 2 18 6
Picking 7 cwt. the average produce per acre of Castle Hedingham Marsh, for 10 years	4 4 0	Total annual value of the produce per acre £.47 3 0	
Drying & bagging the said 7 cwt.	2 2 0		
Duty	— — 3 10 0		
Tythe at 5s. per cwt.	— 1 15 0		
Rent	— — 3 3 0		
Poor's rates 10s. other parish rates 3s. 6d.	— 0 13 6		
Three bags, weight 18 lb. each at 2d. per lb. including the making	— 0 10 0		
Interest upon the first cost and annual supply of baskets, stools, pitches, barrows, ladders, forks, and other small implements	0 5 0		
Twitching and ditching	— 0 5 0		
Total annual expence per acre	35 7 6		
Total annual net profit per acre	13 15 6		
	£.47 3 0		£.47 3 0

About forty acres of ash, and Spanish chesnut, have been very judiciously planted in this parish, for hop poles; the soil for the chesnut, is as well chosen as the country would admit of, being that of a sandy loam. The ash upon the rich moory land, promises extremely well; and the whole strongly indicates the great care and skill of the owner.

The roads in this neighbourhood have been greatly improved by cutting down their side greens, lowering the hedges, and removing the pollards and timber trees from the road hedge rows.

The blain, or a swelling of the glands in the throat, slipping calf, and the dug garget, are very troublesome diseases among the cow cattle in this and the adjoining parish of SIBLE HEDINGHAM, where the soil to the north, east, and south of the village, extending to Maplestead, and meeting the lands of Castle Hedingham, forms a sandy loam, upon a brown tender clay or brick earth. A similarity in the soil, though somewhat more wet, prevails on the east side of GREAT and LITTLE MAPLESTEAD, where the land is much broken, and the soil in general on the south and west of those villages, is of light and gentle nature upon a sand and gravel. The veins of clay and brick earth which are found dispersed through this quarter, are always attended with good effect, when applied in certain proportions to the lighter soils.

The valleys are chiefly occupied in the culture of hops, which is well understood and practised to advantage, although the grounds are not so productive as they are generally found to be, in the marsh of Castle Hedingham.

There is no material alteration in the face of the country, to the south of FINCHING FIELD, and the adjoining parishes of Weathersfield, Shalford, and Great Bardfield;

though the structure of the hills is somewhat different, consisting of a sand, a gravel, and a blue and white chalky clay.

The Norfolk and Cambridgeshire sheep, with a cross of the West Country and Hertford are generally preferred; and as a great diversity of opinion prevails, respecting the superiority of the Norfolk and Southdown, it has led to the following experiment by a very accurate and well informed gentleman at Finchingfield. At Horringer fair, in Suffolk, in September 1791, a lot of ewe lambs was bought in at six pound ten shillings per score. At Lewes fair, Sussex, in the October following, a lot of Southdown ewe lambs was bought in at thirteen pound per score. These sheep were depastured together, and in every respect received the same treatment until the 25th of September, 1793; a single sheep, which was adjudged to be the level of each lot, was then taken out, and after both had fasted twenty-six hours, were weighed alive, the Southdown weighing ninety-six pounds, and the Norfolk ninety-five pounds; they were then slain and the following resulted from the experiment.

## SOUTHDOWN.

lbs.		lbs.
$52\frac{1}{2}$	carcase	$53\frac{1}{2}$
$8\frac{1}{2}$	skin	7 and horns
$1\frac{1}{2}$	legs cut off at the usual knee joints	$1\frac{1}{2}$
$4\frac{3}{4}$	call	3
4	blood	5
$7\frac{1}{2}$	head and pluck	$7\frac{1}{2}$
$2\frac{3}{4}$	gut fat	$2\frac{1}{4}$
$12\frac{1}{2}$	entrails and their contents	$1\frac{4}{4}$
2	lost by killing supposed to be urine	$1\frac{1}{4}$
<hr/> lbs. 96		<hr/> lbs. 95

In favour of the Southdown were

$2\frac{1}{4}$ lbs. of fat, $4\frac{1}{2}$ d. per lb.	o o 10
$1\frac{3}{4}$ lbs. of skin and wool	o o 5
	————— o 1 3

In favour of the Norfolk were

1lb. of mutton - - -	o o 5
and first cost	o 6 6
	————— o 6 11

Total difference in favour of the Norfolk sheep o 5 8

It is to be observed that neither of these ewes had had any young, but at the time of making the experiment, the Norfolk was more than half gone with lamb, and the Southdown had but just taken the ram.

The author of this experiment has constructed and uses a draining wheel of cast iron, that weighs about 4 cwt. it is four feet in diameter; the cutting edge, or extreme circumference of the wheel is half an inch thick, which increasing in thickness towards the nave or centre, will, at fifteen inches deep, score out or cut a drain half an inch wide at the bottom, and four inches wide at the top. This wheel is so placed in a frame, that it may be loaded at pleasure, and be made to operate to a greater or less depth, according to the resistance made by the ground; which thus scored out in the winter, the wheel-tracks are either then filled with straw ropes, and lightly covered over; or left to crack wider and deeper, during the ensuing summer. The fissures are then filled with twisted straw or bushes, and covered lightly with some of the most porous earth that may be most conveniently at hand; and thus upon the grass or ley land, are hollow drains formed at little or no expence, and which upon trial have been found to answer extremely well.

A considerable improvement has been made by the same gentleman by forming walking paths through the wet woodlands: foot drains, or those one spit wide and deep are there cut parallel to each other, and at the distance of from eighteen inches to two foot apart; between these drains the sods that are raised are laid; thus raising a path-way above the general level of the wood, and at the same time forming drains which effectually relieve the wood of its superabundant water: hence a more durable undergrowth is encouraged, and as oak timber is always found to flourish better in woods moderately moist, than those that are wet, there is reason to believe that a due attention to this point, in the wet heavy woodland counties, would prove highly beneficial, and much promote the growth and durability of oak and other valuable timber.

Potatoes are very generally cultivated in the lighter parts of this neighbourhood; their most approved management is, to winter fallow and prepare the land as for barley; ploughed into four furrow ridges, and planted with two rows of sets at eight inches square upon each ridge. In the early part of the summer, the furrows are ploughed, and the plants are moulded up as much as possible. The crop is gathered by first splitting down the ridges with a double breasted plough; this with subsequent harrowing and housing will cost about thirty shillings; and averaging the annual produce at 300 bushels per acre, may be readily sold at one shilling per bushel in the field. This crop proves an excellent preparation for wheat; but as early sowing is precluded, it will be found necessary to keep the land as close and as much compressed as possible during the ensuing spring, to prevent the wheat from root falling.

The preparation for carrots is very similar to the above for potatoes, and is generally reckoned to amount to about fifteen

fifteen shillings per acre. The seed is sown broadcast, using        lbs. per acre; successive hoeings will cost about four pounds per acre: and gathering, lopping, tailing, and stowing away, will be about four pounds per acre more. The average produce per acre, is stated at 650 bushels, which readily commands six-pence per bushel in the field. The best and most healthy roots are selected for feed; which are always set out upon the heaviest and strongest land; and afford a considerable supply of feed for the London market. This culture for feed, and for horse food, prevails very generally through this neighbourhood, but more particularly at WEATHERSFIELD; where the soil in many places, (in addition to the former description) is a white wet loam (or what is called moor) upon a gravelly loam; red, and white sand; and a heavier soil, upon a white chalky clay.

The moory land is frequently mended with drift sand, in the proportion of thirty loads per acre; and the sandy lands have been much improved by the application of chalky clay, at an expence of 2l. 9d. per acre, viz.

Stubbing, filling, and spreading forty-five loads, at

8s. per score	- - - - -	o 18 o
One and a half days work for five horses, at 2s.		
per day each	- - - - -	o 15 o
Driver, one and a half day, at 1s. 6d. per day	o 2 3	
Allowance for beer to driver, and for stubbing,		
filling, and spreading	- - - - -	o 2 6
Wear and tear of two tumbrells, one and a half		
day, at one shilling each, per day	- - -	<u>o 3 o</u>
		£.2 o 9

which after a lapse of three or four years is frequently renewed, by applying about one half of the same quantity per acre.

An experiment worthy of some observation, was began in this parish about four years since. A piece of wet heavy land was fallowed in the usual way, laid into four furrow ridges, two furrows upon which were sown, requiring about one bushel of seed wheat per acre. The crop was kept perfectly clean with the hoe, and weed hook, at an expence of about six shillings ; and produced sixteen bushels per acre. The field was then hollow drained and underwent a thorough winter and summer fallow ; after which, the two furrows that had not grown the former crop, were in like manner sown with wheat, hoed and kept clean, at the usual expence ; and yielded a produce of forty bushels per acre : at this time the whole of the field had been under crop in three years ; the succeeding year, the entire field was sown broadcast with wheat, and which at present (July, 1794) indicates a produce equal to that last mentioned. The wheat was from the stock of Taunton Dale in Somersetshire.

The soil through SHALFORD and GREAT BARDFIELD, consists of a loamy sand and gravel, upon a white and yellow sand, and a wet heavy loam, upon a brown clay, or brick earth ; below which, at eighteen or twenty inches, is found a blue and a white chalky clay, which is applied with very good effect, in strengthening the light soils, in a proportion of 160 bushels per rod, or 6400 bushels to the acre. The white and yellow sand, is successfully applied in the same quantities to the wet heavy soils.

The most approved husbandry in the lighter parts of the parish of Great Bardfield, is to sow the wheat stubbles immediately after harvest with tares, or rye. These are mown, or fed off in the spring, and the land dunged and prepared for turnips. Twice hoed, fed off, and succeeded with  
spring

spring corn with clover. The young clover dunged, mown or fed off as best suits, and sown the spring following with white peas, which are always off in very good time to admit of a proper preparation for wheat; the stubbles of which are haulmed, and sown with tares, or rye in course. Upon the heavy lands the routine of crop and fallow is occasionally varied, with fallow, barley, clover, wheat; and dung if possible upon the young clovers.

A few years ago, as a gentleman in this parish was walking through his wheat fields, when the corn was in full blossom, he was struck with the variety of hues, or colours, which the blossoms assumed: at first he conceived it might be owing to the different stages of forwardness in the blossom; but on particular examination, and more mature reflection, concluded, that they were certain signs of a specific difference in the quality of the wheat; impressed with this idea, he selected the ears of several different hues, and particularly marked eleven distinct numbers; noting very minutely, their characteristic qualities and appearances in the field: these he gathered and kept separate when ripe, and planted them apart from each other in his garden: the same characteristic difference was observed to continue upon the several numbers when growing in the garden, as was observed in the field the preceding summer, and are as follow:

*First Year in the Garden.*

No.

- 1 A stiff straw, thick ear, the rows or chests in which, set closer than in any other.
- 2 Dark straw, full blade, and large open ear.
- 3 A large long ear, ripened late, and well set.
- 4 Full foliage, and a long open ear.
- 5 Straight handsome straw, large well set ears, flag or leaf small.

D

6 Red

- 6 Red rusty leaf before spindling, red straw with little leaf at harvest, and smaller ears than any.  
 7 Very like No. 6 in straw, the ears small but well set.  
 8 Straw leafy at harvest, of a good colour, well eard, and handsome.  
 9 } Straw full of flag or leaf at harvest; ears set wide.  
 10 }  
 11 Very like No. 5.

*Second Year in the Garden.*

- No.  
 1 Short upright stiff straw, thick well set ear, and later by four or five days than any of the others.  
 2 Very dark straw, upon which there remained a full dark blade at harvest, long open ears.  
 3 Strong leafy straw, of a good colour, with a thick long ear, well set; rather later than Nos. 5, 8, 11.  
 4 Thick leafy brown straw with a small ear.  
 5 } Short handsome bright leafy straw ears long, thick;  
 8 } and well set.  
 11  
 6 Long straw with a good deal of flag, ear ill set, and open.  
 7 Straw handsome, but small ears, and subject to root falling.  
 9 } Long weak straw, very leafy, and subject to root  
 10 } falling.

N. B. The lemon coloured blossom was observed to attend Nos. 5, 8, and 11; but the colour of Nos. 1 and 3, was not particularly remembered. These are the numbers which have been preserved, Nos. 5, 8 and 11, coming to the sickle about a week earlier than Nos. 1 and 3; the produce of which, when compared with the rejected numbers, is an excess of from six to eight bushels per acre, and weighing about three pounds more to the bushel.

Proceeding

Proceeding south-easterly and keeping the more elevated country from Great Bardfield, through BARDFIELD, SALING, GREAT SALING, and to PANFIELD, the light gravelly soil continues intermixed with a brown tender loam, of a good staple upon a chalky clay. Thence towards BOCKING and BRAINTREE, the lands on both sides the Blackwater, and also a branch of that river, are found very much to vary, forming in the vallies a moor, upon the sides of the hill, a loose springy gravel; and upon the higher country a thin compact grey loam, upon a chalky clay. The valleys are generally under pasture and meadow, with some few plantations of hops.

To the westward of the village of GOSSFIELD, and extending towards Weathersfield, a well stapled gravelly loam: northward and easterly towards Hedingham and Halstead, and also to the southward towards Bocking, a tender clay or loam, of a good staple, upon a brown clay or brick earth, below which in some places is found a blue and white chalky clay.

A straw hat manufactory has lately been established under the patronage of the Marchioness of Buckingham, which affords ample employment for all the poor women and children of the neighbourhood.

The Southdown breed of sheep has been lately introduced, and promises to answer extremely well; a preference however, is still given by very good judges, to a cross breed, between the Southdown ram and Norfolk ewe; the produce from which fattens well, and is much approved of by the butcher.

The land in general adjoining the town of HALSTEAD is a deep sandy loam, upon a brown tender clay: extending thence, in every direction, an heavier soil, upon a gravelly loam, and a white chalky clay prevails; some of the

hollows and sides of the hills are occupied in the culture of hops, and the remainder in meadows and pastures; these are of an excellent quality, though greatly disproportioned to the arable land.

The manufacture of baize, says, and lately of blankets, in this town, has had a disadvantageous effect upon the agriculture of the parish, by increasing the burthen of poor's rates upon the farmer; and which is alledged to be in no wise compensated by any convenience which the parishioners exclusively draw from the manufactory, by the assistance of labourers in hay-time and harvest, as the surrounding parishes equally participate in the advantage of procuring hands in the busy seasons, and are not contributory to the rates.

The higher parts of the Parishes of PEBMARSH and COLNE ENGANE may be described, a brown tender loam upon a brick earth, the greater part of which has been much benefited by hollow draining. The sides of the hills are much inconvenienced by springs; though the lighter lands that are properly drained, afford excellent turnips. A very different soil prevails through the parishes of WHITE and WAKES COLNE, being that of a strong compact close clay, extremely retentive of water, and lying upon a tough red clay or tile earth.

Much of this land has been hollow drained at a pole apart, costing about a guinea per acre, but with so little effect, as in a great measure to discourage that important practice. The means at present pursued to relieve the land of its surface water, is to use the land-fall plough, and to water furrow; and though these operations are performed in the best possible manner, the land is still left saturated with water, and is much later in the seed time and harvest than the adjacent parishes.

The

The land at FORDHAM, lying south-westerly from the church, and abutting upon Coptford and Aldham, consists of a light sandy, and gravelly soil, abounding with springs. Thence north-westerly and towards Little Horsley, a mixture of soil upon a chalky clay, which continues without any material alteration easterly, through WORMINGFORD and MOUNT BUERS, where, binding upon the river Stour, is a strong well stapled tender loam, upon a gravel. The sides of the hills, though abounding with springs, are very apt to burn in dry seasons; and not unfrequently are found in the same field, a rank red sand, white lashy moor (*i. e.* watery marl) strong heavy clay, upon a tile earth, and rich sound loam, upon a tender clay.

The mill dams, and the navigation from Manningtree to Sudbury, by keeping the water in the river Stour too high for the level of the adjoining meadows, prove very injurious, as on the slightest freshes those lands are frequently inundated.

At EARLS COLNE the land in general is a well working soil, upon a brown tender loam, intermixed with some good turnip land. The same character of soil is continued through GREAT TEY and ALDHAM, but after crossing the head branch of the Roman River, and ascending towards MARKS and LITTLE TEY, the soil is found to vary from a strong wet clay upon a tile earth, to a grey tender loam upon a chalky clay, intermixed with a few spots, upon which turnips are occasionally cultivated, though not without much injury to the succeeding crop.

The land in the parish of COGGERSHALL, forms a sandy and gravelly loam, of a fair staple, upon a brick earth, a gravel, and a white chalky clay. This latter substance, after hollow draining the wet springy lands, is applied with very good effect, in the proportion of fifty loads, and at

an

an expence of three pounds per acre. A similar soil is found to prevail at PATSWICK, and STISTED.

Through BRADWELL and CRESSING, a wet brown earth, upon a strong brown and a white chalky clay; through which is interspersed some very fine gravel; that is continued in a larger proportion through the parishes of RIVEN-HALL, CHEPPING-HILL, and KELVEDON. In the last mentioned parish the soil is found chiefly to consist of a light friable loam, upon a tender brown clay, containing in a north-west and south-easterly direction, a vein of rich marley clay: This has been applied with an equally good effect, as well upon the wet heavy, as on the more dry and lighter lands, in the following proportion and expence per acre.

Stubbing, filling and spreading fifty loads of forty bushels each, at 7s. per score	- - -	0 17 6
Five horses, two and a half days, at 2s. per day each	- - - - -	1 5 0
Wear and tear of two tumbrrels, at 1s. per day each	- - - - -	0 5 0
Driver, two and a half days, at 1s. 6d. per day		0 4 0
Allowance for beer upon the mens labour, at 2d. in the shilling, 21s. 6d.	- - -	0 3 7
		<u>£. 2 15 1</u>

An expence which would be incurred more frequently, but from the dip and direction of the vein, which will only admit the parish to be partially benefitted.

RAYNE, BLACK and WHITE NOTLEY, and FALKBOURN: through these parishes the land is very much intermixed and broken, the higher parts consisting of clay, and the hollows and sides of the hills of gravel and moor. The roads passing over the hills are materially injured

jured by the springs which rise on their sides. Clover has been so generally sown in this neighbourhood, that the land has in a great degree become tired of it; and tares now sown as its substitute, seem to encourage a well grounded expectation that the soil in a few years will again admit the culture of that valuable grass. The principal observation respecting the clover sick lands is, that although at the time of harvest, and during winter there appears to be a very sufficient plant, yet in the spring it is always found to fail, particularly on the tops of the ridges. Great benefits have resulted in this neighbourhood from claying the light lands, and correcting the natural defects of the several soils, by mixing the opposites of each other together. From Falkbourn across to FAIRHEAD, a wet heavy cold soil, upon a chalky clay, and very subject to brambles, and to coltsfoot. Thence to TERLING the soil becomes lighter, much intermixed, and very liable to burn in those parts which lie near the gravel. Towards HATFIELD-PEVERIL the soil is more uniform, being a sandy loam, upon a strong bottom; under which, in many places, are found a deep strata of a white and a yellow sand. A sandy loam, chiefly upon a gravel, forms the soil through Hatfield-Peveril to ULTING, upon which, turnips are cultivated to great advantage.

Towards WITHAM the land is heavier, forming a tender mould, of a good staple upon a clay. In the parishes of BOREHAM and SPRINGFIELD the land is of a light and gentle nature, upon a gravel and tender clay. In those of LITTLE and GREAT WALTHAM the soil is more varied, consisting of a gravelly and a brown tender loam, upon a gravel and a brick earth, and a thin wet grey loam upon a chalky clay.

The

The beneficial effects of this last substance, as a manure when applied on the light lands, at the rate of sixty loads (forty bushels each) and at an expence of four pounds per acre, is supposed, in this neighbourhood, to last twenty years.

A similar variety with the last described soil, seems to prevail through GREAT and LITTLE LEIGH, where, although the commons are very wet, they are not liable to communicate any injurious effects to the sheep and cows that depasture upon them. A light loamy gravel, of a fair staple, prevails through FELSTEAD, which, with a mixture of brown tender loam, upon a chalky clay, continues through STEBBING.

The foil in the parish of LINDSELL consists of a brown loamy clay, upon a blue and white chalky clay, a deep binding gravelly loam upon a clayey gravel; and a well stapled sandy loam upon a gravel, and a brown tender clay. This last description of foil prevails northerly to LITTLE BARDFIELD, where the pleasure that is received by passing through a beautifully diversified, well watered, and fruitful country, is greatly alloyed, by observing some of the pasture land putting on a very rough and neglected appearance.

The heavy lands under cultivation in the parish of THAXTED, have obtained a fair staple, but those which have long been in a state of rest, are thought to have been much injured by compression. This observation applies equally to those lands which have a white chalky clay bottom, as to those which lie upon a tough red clay or tile earth.

Great improvements might here be made by laying together the intermixed property in the open field, which would

would remove the present inconvenience attending its management. By occasionally leading a part of the water of the river Chelmer over the meadows which lie along its course, a considerable improvement may be made thereon.

The varieties in this parish continue very generally to GREAT EASTON, where the leading character of the soil, is a thin tough cling clay, under which, at various depths, are found strata of red and brown sand. Intermixed with the clay soil, are found small portions of sandy loam, which attend it south-westerly through GREAT and LITTLE DUMMOW, where, in the higher parts of the country, a thin grey soil upon a chalky clay, is gradually lost in a deep friable mould, on the sides of the hills which hang towards the meadows that abut upon the river Chelmer. Proceeding thence southerly, crossing the valley, and ascending towards BARNSTON, a well mixed deep mould upon a brown and a chalky clay, and a thin light gravelly soil upon a gravel.

There are various modes of cropping pursued in this district; the first of which upon the heavy land, is to fallow the wheat stubbles for barley, sow fourteen pecks to the acre; then fallow the barley stubbles for wheat, sow ten or eleven pecks to the acre, and always dung upon the fallows for barley. Upon the more temperate lands, the usual routine of crops are, first, fallow for oats or barley; sow of the former, from sixteen to eighteen pecks; of the latter, from twelve to fourteen pecks, and with either fourteen pounds of red clover to the acre. This is mown or fed off as best suits the convenience of the farmer, and succeeded with wheat, after once ploughing the clover ley, sowing from nine to eleven pecks per acre; part of the wheat stubbles are occasionally sown with tares; the land is then fallowed in course for spring corn. In this series it is always judged

best to dung the young clovers rather than the fallows for spring corn, or the clover leys for wheat. When the lands of this temperament are in very good condition, the wheat stubbles are dunged, and sown with beans upon three-foot ridges, two furrows upon a ridge; springed or put in with a hand drill; using for seed of the small Essex bean, about ten pecks; and when every furrow is sown, about fourteen pecks to the acre. The beans are hoed and kept clean, at an expence of from eight to ten shillings per acre, and succeeded with wheat, sowing from ten to eleven pecks per acre. The wheat stubbles are haulmed, sown with tares for spring food, and then fallowed in course for oats or barley.

Upon the lighter lands, (and where turnips can be cultivated to advantage) first fallow, and dung for turnips, sow one quart of seed to the acre; hoe once or twice as the crop may require, costing from five to eight shillings per acre. The turnips are partly drawn, and partly fed off, and succeeded generally after once ploughing, with oats or barley; using the same quantity of seed as is required by the fallows on the temperate land. With the spring corn is sown the usual quantity of clover, which lies one year, it is then, upon once ploughing, succeeded with wheat, sown broadcast ten pecks to the acre, and harrowed in. The wheat stubbles are usually sown with tares or rye, for spring food; the land it then dunged and prepared for turnips, and the same course repeated with little variation, if we except only the occasional culture of a small portion of coleseed, which generally stands for a crop.

The result of this management requiring the seed stated above, and aided by the application of manure, as set forth in the Journal, produces, according to the index table, the following average:

AVERAGE.

## AVERAGE QUANTITY OF SEED REQUIRED

	pecks	bushels	pecks	per acre
Of Wheat per acre	10 . 2	producing	22 3	
Of Rye				
Of Barley ditto	12 . 4	producing	34 2	ditto
Of Oats ditto	17 . 0	producing	33 0	ditto
Of Peas ditto	15 . 0	producing	20 0	ditto
Of Beans drilled ditto	12 . 0	producing	21 0	ditto

N. B. It must be observed that the average on wheat is struck upon the small red and white wheat. Where rivet or bearded wheat is cultivated, an addition to the average may be made of five or six bushels per acre: at the same time it may be noticed, that the rivet wheat is in general six-pence per bushel less in value than the smaller or Kentish wheat.

By reference to the table, a difference of five shillings and ten-pence per acre will appear in the annual rent or value of the open common field, and the inclosed arable land. Of twelve shillings and two-pence per acre, between the partially improved pastures, and those of the first quality. Of five shillings and nine-pence per acre, between the half-yearly meadow land, and that which is in severalty. Of eight shillings per acre, between the annual value of the coarse and neglected inclosures, and the average rent of the arable and pasture land, when the same are let together, and without distinction of price. That there are two hundred acres of waste forest land, which by inclosure, may be improved to the proprietor in its annual value fifteen shillings per acre. That there are one hundred and forty acres of common, that by inclosure, may be improved eleven shillings and six-pence per acre per annum. That the present composition for the great and small tythes, is three shillings and nine-pence farthing, and that the same has risen within twenty years one shilling and two-pence three-farthings

farthings per acre ; and finally, that the poor's rates calculated on the present rack rents, are four shillings and four-pence halfpenny, and that they have increased one shilling and sixpence farthing in the pound within the last ten years.

The average price of provisions, value of labour, and servants wages through this district, may be stated thus :

Beef and mutton  $4\frac{1}{2}$ d. per lb.—veal and fresh pork  $5\frac{1}{2}$ d. per lb.—pickled pork  $7\frac{3}{4}$ d. per lb.—butter  $10\frac{1}{2}$ d. per lb—cheese 6d. per lb.—flour  $23\frac{1}{4}$ d. per peck—potatoes  $13\frac{1}{2}$ d. per bushel—Stated price of daily labour in the winter 7s. 6d. in the summer 9s. per week. Threshing wheat  $28\frac{1}{2}$ d. per quarter ; barley  $16\frac{1}{4}$ d. per quarter ; oats  $14\frac{1}{2}$ d. per quarter ; peas 27d. per quarter ; beans 14d. per quarter. Head man's wages, with board and lodging 8l. 10s. per annum ; boy's wages, with the same, 40s. per annum ; women's wages, with board, washing, and lodging, 4l. per annum ; girl's, with the same, 45s. per annum.

## DISTRICT THE FIRST--*Temperate mixed soil.*

**GENERAL AVERAGE** deducted from the foregoing Table, showing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of fish of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus concurred) touching the present and former agricultural interests of this district.

improveable to 21s. per acre.

General Average	14 4
Open field, partially improved and waste land	8 6
Difference . . . . .	5 10



## DISTRICT THE SECOND.

*Light mixed soil, upon a gravel, a sand, and a brown tender loam.*

BEGINNING at WEST BERGHOLT, where the land, binding upon BURES and FORDHAM, is of a heavier nature than that to the eastward, and abutting upon the heath, which is found to lie upon a sand and gravel, and forms excellent turnip land.

The meadows upon the river Colne are much injured by the keeping up of the water for the supply of the mills.

Proceeding northward towards GREAT HORSLEY, a great deal of excellent turnip land, which continues to the parish of BOXTED, where the land upon the river Stour forms a light tender hazel coloured earth, of a good staple; but ascending southerly, a fleetier soil; and near the tops of the hills, a few spots of very heavy land: with these exceptions, the whole may be advantageously employed in the culture of turnips. A similar description of soil will apply to LANGHAM, saving that in the higher parts of that parish the staple is not equally good. Crossing the Black Brook and proceeding southerly towards ARDLEIGH, a stronger and deeper staple is found, of a cooler nature, and more certain corn land. Returning northerly through DEDHAM, the soil is of a similar nature.

By the failure of the baize manufacture, which flourished in this parish some years ago, the expensive burthen of the poor has been considerably increased.

The

The soil of LAWFORD, BRADFIELD, WRABNESS, and MISTLEY, is well adapted to the culture of barley and turnips. Wheat is sometimes sown, but the soil is not generally suited to the culture of that grain. Thence to RAMSEY, DOVER COURT, and HARWICH, a deep well mixed friable earth, upon which turnips, clover, and most grains and grasses may be cultivated to advantage.

In this neighbourhood the usual mode of manuring per acre, is to mix one waggon load of London muck, with about five times the quantity of fresh soil collected from the road and hedge greens. The cost of the London muck at the wharf, is fifteen shillings per waggon load; the carriage of this, and mixing it with the earth heap, will cost 4s. 6d. per load of forty bushels each, twelve of which applied to the acre, equals - - - 2 14 0  
 Carting from the heaps into the fields, 6d. per load 0 6 0  
 Filling and spreading at 1½d. per load - 0 1 6  
 Driver half a day, including allowance for beer  
 $10\frac{1}{2}$ d. allowance for beer upon filling and  
 spreading, at 2d. in the shilling, 3d. in all 0 1 1½  
 $\underline{\underline{L\cdot 3\ 2\ 7\frac{1}{2}}}$

which expence in mending, is supposed to be annually incurred on about one-sixth part of the land that comes in turn for manuring; together with occasional light top dressings of foot, ashes, &c. upon the wheat and young clover.

From Ardleigh to LITTLE BROMLEY, a deep well working soil, and very judiciously employed in the culture of turnips.

In this neighbourhood brank or buckwheat, has been sown and ploughed under for manure, when in full blossom: this is generally a preparation for wheat, but has not answered sufficiently to induce a continuation of the practice.

Through

Through ELMSTEAD, FRATING and WIVENHOE, the soil produces very good turnips, nor is any material difference discoverable till you approach the broken country about ARLESFORD, where the sand and gravelly hills improve towards the marshes, which border upon the river Colne. Crossing that river, and proceeding west towards FINGERINGHOE, EAST and WEST DONYLAND, the soil is of a dry and mellow nature, and applicable to the culture of turnips, upon a general and extensive scale. Proceeding thence southerly, beyond the Roman River, towards LAYER DE LA HAY, GREAT and LITTLE BIRCH, a light sand and gravelly soil, which gradually improves northerly, and at COPTFORD forms a deep tractable hazel coloured loam, upon a brown tender clay, with a small intermixture of gravel. A vein of blue chalky clay has been worked in this parish, and is applied in the following proportions and expence per acre, viz.

Stubbing, filling and spreading fifty loads, at 3d.

per load	- - - - -	- - - - -	o 12	6
Four horses, and two tumbrrels, two and a half				
days, at 12s. per day	- - - - -	- - - - -	1 10	0
Driver two and a half days, at 1s. 6d. per day			o 3	0
Allowance of beer upon stubbing, filling, spreading,				
and the driver's wages 15s. 6d. at 2d. in the				
shilling	- - - - -	- - - - -	o 2	7
			£.	2 8 1

which dressing is supposed to remain in force for twenty years.

From Coptford, north to STANWAY, a light gravel and sandy loam upon a dry sharp gravel, which soil much improves towards LEXDEN. Thence northerly through MILE END, and the other villages surrounding, and attached to the Borough of COLCHESTER, a deep hazel coloured

coloured loam, upon a gravel and brown tender clay, through which are interspersed some very good pastures, and a small skirting of tolerable meadows upon the river Colne.

In the corporation of Colchester, which comprehends sixteen parishes, and of which, Greenstead, Bere Church, or West Donyland, Lexden, and Mile End, are the four out parishes, and annexed thereto; about one-third of the arable land lies in half-yearly common fields, the inclosing of which, and throwing it into severalty, is much desired by the most intelligent persons in that neighbourhood.

The husbandry which prevails most generally through this district, is to fallow, dung and prepare for sowing turnips broadcast, about Old Midsummer; using from one quart to three pints of seed to the acre. As the land may be more or less foul, or the crop may be found to require it, the turnips are hoed once or twice, costing from 5s. to 8s. per acre. The turnips are generally fed off with sheep, and the land sown with barley upon once ploughing, using from twelve to fourteen pecks of seed, and the same number of pounds of red clover to the acre. The clover is mown or fed off, and succeeded by wheat upon the ley, about twelve pecks of seed to the acre; a portion of the wheat stubbles are generally sown with tares or rye for spring food, and then prepared for turnips in course. The wheat stubbles are sometimes sown with peas or oats, and then succeeded by a preparation for turnips, and when the clover misses plant, brank or buckwheat, four bushels to the acre is sown, stands for a crop, and is succeeded by wheat in like manner as upon a clover ley.

Buckwheat has been ploughed in for manure when in full blossom, but is not found to answer.

The expence incurred in the first cost and application of manure, noticed in the journal of this district, applies very generally

DISTRICT THE SECOND--*Light mixed soil.*

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

2 UNIT TESTS

and students can run them from the

Test	Score	Date
Unit Test 1	85	2023-09-15
Unit Test 2	92	2023-09-17
Unit Test 3	78	2023-09-19
Unit Test 4	88	2023-09-21
Unit Test 5	90	2023-09-23
Unit Test 6	87	2023-09-25
Unit Test 7	91	2023-09-27
Unit Test 8	89	2023-09-29
Unit Test 9	93	2023-09-30
Unit Test 10	86	2023-10-01
Unit Test 11	94	2023-10-03
Unit Test 12	83	2023-10-05
Unit Test 13	90	2023-10-07
Unit Test 14	87	2023-10-09
Unit Test 15	91	2023-10-11
Unit Test 16	86	2023-10-13
Unit Test 17	92	2023-10-15
Unit Test 18	89	2023-10-17
Unit Test 19	93	2023-10-19
Unit Test 20	87	2023-10-21
Unit Test 21	91	2023-10-23
Unit Test 22	86	2023-10-25
Unit Test 23	90	2023-10-27
Unit Test 24	88	2023-10-29
Unit Test 25	92	2023-10-31
Unit Test 26	85	2023-11-02
Unit Test 27	91	2023-11-04
Unit Test 28	87	2023-11-06
Unit Test 29	93	2023-11-08
Unit Test 30	86	2023-11-10
Unit Test 31	90	2023-11-12
Unit Test 32	89	2023-11-14
Unit Test 33	91	2023-11-16
Unit Test 34	87	2023-11-18
Unit Test 35	92	2023-11-20
Unit Test 36	86	2023-11-22
Unit Test 37	90	2023-11-24
Unit Test 38	88	2023-11-26
Unit Test 39	93	2023-11-28
Unit Test 40	87	2023-11-30
Unit Test 41	91	2023-12-02
Unit Test 42	86	2023-12-04
Unit Test 43	90	2023-12-06
Unit Test 44	89	2023-12-08
Unit Test 45	91	2023-12-10
Unit Test 46	87	2023-12-12
Unit Test 47	92	2023-12-14
Unit Test 48	86	2023-12-16
Unit Test 49	90	2023-12-18
Unit Test 50	88	2023-12-20
Unit Test 51	93	2023-12-22
Unit Test 52	87	2023-12-24
Unit Test 53	91	2023-12-26
Unit Test 54	86	2023-12-28
Unit Test 55	90	2023-12-30
Unit Test 56	89	2023-12-32
Unit Test 57	91	2023-12-34
Unit Test 58	87	2023-12-36
Unit Test 59	92	2023-12-38
Unit Test 60	86	2023-12-40
Unit Test 61	90	2023-12-42
Unit Test 62	88	2023-12-44
Unit Test 63	93	2023-12-46
Unit Test 64	87	2023-12-48
Unit Test 65	91	2023-12-50
Unit Test 66	86	2023-12-52
Unit Test 67	90	2023-12-54
Unit Test 68	89	2023-12-56
Unit Test 69	91	2023-12-58
Unit Test 70	87	2023-12-60
Unit Test 71	92	2023-12-62
Unit Test 72	86	2023-12-64
Unit Test 73	90	2023-12-66
Unit Test 74	88	2023-12-68
Unit Test 75	93	2023-12-70
Unit Test 76	87	2023-12-72
Unit Test 77	91	2023-12-74
Unit Test 78	86	2023-12-76
Unit Test 79	90	2023-12-78
Unit Test 80	89	2023-12-80
Unit Test 81	91	2023-12-82
Unit Test 82	87	2023-12-84
Unit Test 83	92	2023-12-86
Unit Test 84	86	2023-12-88
Unit Test 85	90	2023-12-90
Unit Test 86	88	2023-12-92
Unit Test 87	93	2023-12-94
Unit Test 88	87	2023-12-96
Unit Test 89	91	2023-12-98
Unit Test 90	86	2023-12-100
Unit Test 91	90	2023-12-102
Unit Test 92	88	2023-12-104
Unit Test 93	93	2023-12-106
Unit Test 94	87	2023-12-108
Unit Test 95	91	2023-12-110
Unit Test 96	86	2023-12-112
Unit Test 97	90	2023-12-114
Unit Test 98	89	2023-12-116
Unit Test 99	91	2023-12-118
Unit Test 100	87	2023-12-120
Unit Test 101	92	2023-12-122
Unit Test 102	86	2023-12-124
Unit Test 103	90	2023-12-126
Unit Test 104	88	2023-12-128
Unit Test 105	93	2023-12-130
Unit Test 106	87	2023-12-132
Unit Test 107	91	2023-12-134
Unit Test 108	86	2023-12-136
Unit Test 109	90	2023-12-138
Unit Test 110	89	2023-12-140
Unit Test 111	91	2023-12-142
Unit Test 112	87	2023-12-144
Unit Test 113	92	2023-12-146
Unit Test 114	86	2023-12-148
Unit Test 115	90	2023-12-150
Unit Test 116	88	2023-12-152
Unit Test 117	93	2023-12-154
Unit Test 118	87	2023-12-156
Unit Test 119	91	2023-12-158
Unit Test 120	86	2023-12-160
Unit Test 121	90	2023-12-162
Unit Test 122	88	2023-12-164
Unit Test 123	93	2023-12-166
Unit Test 124	87	2023-12-168
Unit Test 125	91	2023-12-170
Unit Test 126	86	2023-12-172
Unit Test 127	90	2023-12-174
Unit Test 128	89	2023-12-176
Unit Test 129	91	2023-12-178
Unit Test 130	87	2023-12-180
Unit Test 131	92	2023-12-182
Unit Test 132	86	2023-12-184
Unit Test 133	90	2023-12-186
Unit Test 134	88	2023-12-188
Unit Test 135	93	2023-12-190
Unit Test 136	87	2023-12-192
Unit Test 137	91	2023-12-194
Unit Test 138	86	2023-12-196
Unit Test 139	90	2023-12-198
Unit Test 140	88	2023-12-200
Unit Test 141	93	2023-12-202
Unit Test 142	87	2023-12-204
Unit Test 143	91	2023-12-206
Unit Test 144	86	2023-12-208
Unit Test 145	90	2023-12-210
Unit Test 146	88	2023-12-212
Unit Test 147	93	2023-12-214
Unit Test 148	87	2023-12-216
Unit Test 149	91	2023-12-218
Unit Test 150	86	2023-12-220
Unit Test 151	90	2023-12-222
Unit Test 152	88	2023-12-224
Unit Test 153	93	2023-12-226
Unit Test 154	87	2023-12-228
Unit Test 155	91	2023-12-230
Unit Test 156	86	2023-12-232
Unit Test 157	90	2023-12-234
Unit Test 158	89	2023-12-236
Unit Test 159	91	2023-12-238
Unit Test 160	87	2023-12-240
Unit Test 161	92	2023-12-242
Unit Test 162	86	2023-12-244
Unit Test 163	90	2023-12-246
Unit Test 164	88	2023-12-248
Unit Test 165	93	2023-12-250
Unit Test 166	87	2023-12-252
Unit Test 167	91	2023-12-254
Unit Test 168	86	2023-12-256
Unit Test 169	90	2023-12-258
Unit Test 170	88	2023-12-260
Unit Test 171	93	2023-12-262
Unit Test 172	87	2023-12-264
Unit Test 173	91	2023-12-266
Unit Test 174	86	2023-12-268
Unit Test 175	90	2023-12-270
Unit Test 176	88	2023-12-272
Unit Test 177	93	2023-12-274
Unit Test 178	87	2023-12-276
Unit Test 179	91	2023-12-278
Unit Test 180	86	2023-12-280
Unit Test 181	90	2023-12-282
Unit Test 182	88	2023-12-284
Unit Test 183	93	2023-12-286
Unit Test 184	87	2023-12-288
Unit Test 185	91	2023-12-290
Unit Test 186	86	2023-12-292
Unit Test 187	90	2023-12-294
Unit Test 188	88	2023-12-296
Unit Test 189	93	2023-12-298
Unit Test 190	87	2023-12-300
Unit Test 191	91	2023-12-302
Unit Test 192	86	2023-12-304
Unit Test 193	90	2023-12-306
Unit Test 194	88	2023-12-308
Unit Test 195	93	2023-12-310
Unit Test 196	87	2023-12-312
Unit Test 197	91	2023-12-314
Unit Test 198	86	2023-12-316
Unit Test 199	90	2023-12-318
Unit Test 200	88	2023-12-320
Unit Test 201	93	2023-12-322
Unit Test 202	87	2023-12-324
Unit Test 203	91	2023-12-326
Unit Test 204	86	2023-12-328
Unit Test 205	90	2023-12-330
Unit Test 206	88	2023-12-332
Unit Test 207	93	2023-12-334
Unit Test 208	87	2023-12-336
Unit Test 209	91	2023-12-338
Unit Test 210	86	2023-12-340
Unit Test 211	90	2023-12-342
Unit Test 212	88	2023-12-344
Unit Test 213	93	2023-12-346
Unit Test 214	87	2023-12-348
Unit Test 215	91	2023-12-350
Unit Test 216	86	2023-12-352
Unit Test 217	90	2023-12-354
Unit Test 218	88	2023-12-356
Unit Test 219	93	2023-12-358
Unit Test 220	87	2023-12-360
Unit Test 221	91	2023-12-362
Unit Test 222	86	2023-12-364
Unit Test 223	90	2023-12-366
Unit Test 224	88	2023-12-368
Unit Test 225	93	2023-12-370
Unit Test 226	87	2023-12-372
Unit Test 227	91	2023-12-374
Unit Test 228	86	2023-12-376
Unit Test 229	90	2023-12-378
Unit Test 230	88	2023-12-380
Unit Test 231	93	2023-12-382
Unit Test 232	87	2023-12-384
Unit Test 233	91	2023-12-386
Unit Test 234	86	2023-12-388
Unit Test 235	90	2023-12-390
Unit Test 236	88	2023-12-392
Unit Test 237	93	2023-12-394
Unit Test 238	87	2023-12-396
Unit Test 239	91	2023-12-398
Unit Test 240	86	2023-12-400
Unit Test 241	90	2023-12-402
Unit Test 242	88	2023-12-404
Unit Test 243	93	2023-12-406
Unit Test 244	87	2023-12-408
Unit Test 245	91	2023-12-410
Unit Test 246	86	2023-12-412
Unit Test 247	90	2023-12-414
Unit Test 248	88	2023-12-416
Unit Test 249	93	2023-12-418
Unit Test 250	87	2023-12-420
Unit Test 251	91	2023-12-422
Unit Test 252	86	2023-12-424
Unit Test 253	90	2023-12-426
Unit Test 254	88	2023-12-428
Unit Test 255	93	2023-12-430
Unit Test 256	87	2023-12-432
Unit Test 257	91	2023-12-434
Unit Test 258	86	2023-12-436
Unit Test 259	90	2023-12-438
Unit Test 260	88	2023-12-440
Unit Test 261	93	2023-12-442
Unit Test 262	87	2023-12-444
Unit Test 263	91	2023-12-446
Unit Test 264	86	2023-12-448
Unit Test 265	90	2023-12-450
Unit Test 266	88	2023-12-452
Unit Test 267	93	2023-12-454
Unit Test 268	87	2023-12-456
Unit Test 269	91	2023-12-458
Unit Test 270	86	2023-12-460
Unit Test 271	90	2023-12-462
Unit Test 272	88	2023-12-464
Unit Test 273	93	2023-12-466
Unit Test 274	87	2023-12-468
Unit Test 275	91	2023-12-470
Unit Test 276	86	2023-12-472
Unit Test 277	90	2023-12-474
Unit Test 278	88	2023-12-476
Unit Test 279	93	2023-12-478
Unit Test 280	87	2023-12-480
Unit Test 281	91	2023-12-482
Unit Test 282	86	2023-12-484
Unit Test 283	90	2023-12-486
Unit Test 284	88	2023-12-488
Unit Test 285	93	2023-12-490
Unit Test 286	87	2023-12-492
Unit Test 287	91	2023-12-494
Unit Test 288	86	2023-12-496
Unit Test 289	90	2023-12-498
Unit Test 290	88	2023-12-500
Unit Test 291	93	2023-12-502
Unit Test 292	87	2023-12-504
Unit Test 293	91	2023-12-506
Unit Test 294	86	2023-12-508
Unit Test 295	90	2023-12-510
Unit Test 296	88	2023-12-512
Unit Test 297	93	2023-12-514
Unit Test 298	87	2023-12-516
Unit Test 299	91	2023-12-518
Unit Test 300	86	2023-12-520
Unit Test 301	90	2023-12-522
Unit Test 302	88	2023-12-524
Unit Test 303	93	2023-12-526
Unit Test 304	87	2023-12-528
Unit Test 305	91	2023-12-530
Unit Test 306	86	2023-12-532
Unit Test 307	90	2023-12-534
Unit Test 308	88	2023-12-536
Unit Test 309	93	2023-12-538
Unit Test 310	87	2023-12-540
Unit Test 311	91	2023-12-542
Unit Test 312	86	2023-12-544
Unit Test 313	90	2023-12-546
Unit Test 314	88	2023-12-548
Unit Test 315	93	2023-12-550
Unit Test 316	87	2023-12-552
Unit Test 317	91	2023-12-554
Unit Test 318	86	2023-12-556
Unit Test 319	90	2023-12-558
Unit Test 320	88	2023-12-560
Unit Test 321	93	2023-12-562
Unit Test 322	87	2023-12-564
Unit Test 323	91</td	

generally through the adjacent country, where the distance from the wharf, or landing-place, does not absolutely forbid it; and which from the management stated above, produces on an average through this district

21 bushels	3 pecks of Wheat
20 bushels	of Rye
30 bushels	2 pecks of Barley
35 bushels	of Oats
20 bushels	2 pecks of Peas
25 bushels	of Beans.

By reference to the table from which the above general average is taken, it will further appear, that the average rent of the inclosed arable land is 14s. 6d. of the open field arable 10s. 6d. consequently a difference of 4s. per acre lies against that very land, which in this, and in the preceding district, is generally of a superior quality to the arable that is inclosed. That the pasture land of the first quality is superior in its annual value to that of the second class 9s. per acre. That there are 530 acres of salt marsh capable of being highly improved, by embanking from the sea. That the most valuable meadow ground in the district, is half-yearly or Lammes ground; and that its average annual rent is 34s. exceeding that which lies in severalty 9s. per acre. That there are 2829 acres of common, which by inclosure, is capable of being augmented in its present annual value 10s. 5 $\frac{1}{4}$ d. per acre. That the present composition paid for the great and small tythes is 3s. 3 $\frac{1}{4}$ d. and that the same has increased within twenty years 1s. 1 $\frac{1}{4}$ d. per acre. That the poor's rates upon the present rack rents are 4s. 2 $\frac{1}{2}$ d. and that the same have increased within the last ten years 1s. 1 $\frac{1}{2}$ d. in the pound.

On summing up the minutes taken in this district upon the value of labour, servants wages, and price of provisions, they are found to tally so nearly with that statement in the preceding district, that they may very properly be referred thereto.

## DISTRICT THE THIRD.

*Temperate mixed soil, upon a gravelly loam, a sandy, or a fine gravel; a brown clay, or brick earth; and a red clay or tile earth.*

BEGINNING at LITTLE OAKLEY, through which parish, and that of GREAT OAKLEY, is a strong, well mixed deep soil, interspersed with some veins of gravel, upon which turnips are cultivated to advantage. The pasture grounds through this neighbourhood, afford very excellent herbage, which continues without any material alteration to WICKES and GREAT BROMLEY, where a strong well mixed soil prevails, upon a red and white sandy gravel, under which, in many places, lies a brown tender clay or sandy loam. In this distance the land is found very flat, difficult to drain; and where from the looseness of the understratum (unless the work is executed with great care) the hollow drains will require to be renewed every eight or ten years. Proceeding southerly to LITTLE BENTLEY, the soil and understrata continue the same; but thence towards TENDRING and GREAT BENTLEY, the country is a good deal broken, the sides of the hills abounding with springs, and with all that variety of soil and substrata (the chalky clay excepted) so frequently noticed in the course of this journal. West from Great Bentley, and crossing a branch of the river Colne to TORRINGTON, the soil is chiefly a deep brown loam, upon a gravel and a brown tender clay. Thence westward to BRITHLINGSEA, a well mixed soil, of a fair staple upon a gravel. The sides of the hills would be very much annoyed with the springs, were they not generally

rally carried off, (though at a considerable expence,) by hollow drains.

The greater part of the embanked marshes seem to owe much of their present inferiority to neglect and mismanagement.

The land in the parishes of ST. OSYTH, GREAT CLACKTON, and LITTLE HOLLAND, which is bounded on the south, by a level of embanked marshes, and the German Ocean, is well adapted to the culture of grass and corn, and in particular parts, to that of turnips.

Thence north, and towards LITTLE CLACKTON and WHEELY, a strong soil upon a brick earth, through which are found some veins of sandy loam upon a gravel.

The deep strong lands in the parish of GREAT HOLLAND, have been much improved by hollow drains filled with shingle, brought from the sea beach, and sifted gravel. These drains are made thirty inches deep, from three to four inches wide at the bottom, and about nine inches wide at the top: labour 3d. per rod, and materials about 3d. more; averaging through the neighbourhood where the land is clean drained, and the drains made at a rod apart, about 4l. per acre.

Easterly through FRINTON, the soil is formed of a strong deep hazel coloured mould, which at WALTON becomes somewhat lighter, and affords a few spots of very good turnip land. The sides of the hills hanging down to the salt marshes in this parish, might be much improved by a due attention to hollow draining. Thence westerly through KIRBY, a strong compact loam upon a brick earth, and a deep hazel coloured sandy loam upon a gravel. This latter soil prevails very generally through THORPE, upon which,

turnips would be more frequently cultivated, but for the great difficulty in getting them from off the ground. Northerly from Thorpe, and ascending the country at BEAUMONT, a well mixed strong hazel coloured loam upon a brick earth, and a thin wet heavy soil upon a red tough clay.

The embanked marshes in this quarter, are greatly inconvenienced through the want of good water in summer; and although in the higher parts of the country there are some springs, yet their water is so bad (though beautiful to the eye) that in a short time after it has been drawn from the well, it becomes extremely offensive, and is rendered totally unfit for domestic use. Tanks or reservoirs of rain water, seem the only succedaneum for relief; but this important convenience is rarely to be met with.

The following is the expence per acre at which manure is generally applied through this district, when the land to be improved, lies tolerably convenient to the wharfs, or landing places :

One waggon load, containing 90 bushels of London muck, delivered at the wharf, for	- - -	o 15 0
One ditto of chalk ditto	- - - -	o 10 0
Carriage of both ditto to the earth heap at 7s. per load	-	o 14 0
Digging or stubbing about 220 bushels of road or hedge greens	- - - - -	o 3 0
Twice turning and mixing the same, two days work for one man, at 1s. 6d. per day	- - -	o 3 0
Filling and spreading at 4s. per score loads	-	o 2 0
Carting upon the field at 6d. per load	- -	o 5 0
Half a day's work for the driver 9d. and allowance of beer upon stubbing, mixing, filling, spreading and driving, in all 8s. 9d. at 2d. in the shilling	-	o 1 5 $\frac{1}{2}$
Total		£.2 13 5 $\frac{1}{2}$
Which		

Which expence is supposed to accrue annually, upon about one-fourth part of the shift of arable land, which comes regularly in course for manuring ; and which the home-made manure, or that produced from the farm, is not sufficient to afford to that proportion of the farms a proper dressing. This calculation is stated on a supposition that the wharf where the foreign manure is delivered, is within distance of making three turns in a day, with a waggon and five horses; where the team makes but two turns in the day, and where indeed one load is a compleat day's work, the above expence must be proportionably augmented.

The husbandry most generally practiced in this district is to make a thorough summer fallow for oats or barley, and to sow about one half of the spring corn land with clover, dunged when young, and succeeded by wheat upon the clover ley. The oat and barley etches which are not filled with clover, being previously dunged in the winter, are sown early in the spring with beans, drilled or broadcast, kept well hoed through the summer, and succeeded by wheat. The wheat stubbles are haulmed immediately after harvest, and a part of them are sown with tares, which are either fed completely off, or only partly fed, and then left to stand for a crop ; the land is then fallowed for spring corn and the same course repeated. This management is found to be more efficacious in eradicating the black grass, than any other at present known or practised ; and aided by the foreign manure annually expended in the district, produces according to the prefixed table, the following average crops per acre, viz.

Wheat	24 bushels
Rye	
Barley	33 bushels 2 pecks
Oats	38 bushels 1½ peck
Peas	19 bushels 1 peck
Beans	27 bushels 1 peck

In

In addition to the above, the same table shews that the average rent of the arable land through the district, is 14s. 5½d. the pasture land 14s. 9½d. and the marsh land 11s. 1d. per acre. That there are 1700 acres of salt marshes, which may be embanked from the sea to advantage. That the undergrowth of the woods is cut once in twelve years, and sold at the stub for 4l. per acre. That there are 170 acres of thicks or forests, which by inclosing, may be improved 8s. per acre; and that in like manner there are 265 acres of common that may be improved 10s. per acre. That the composition at present paid for the great and small tythes is 3s. 5½d. and that the same has increased within twenty years 1od. per acre. That the poor's rates upon the present rack rents are 3s. 2½d. and that the same have increased 1od. in the pound within ten years.

The value of labour and price of provisions are to be referred to the first district.

### DISTRICT THE THIRD---*Temperate mixed soil.*

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.



## DISTRICT THE FOURTH.

*MERSEA ISLAND—Temperate mixed soil.*

THE Island on the south, on the east, and to the westward, exhibits a strong bold shore; northerly the shore becomes flat and shelving, and is skirted by a large extent of salt marsh, about 1000 acres of which, would pay extremely well for embanking from the sea. The Island is divided into the two parishes of East and West Mersea, the higher parts of which, consist of a dark coloured friable mould, upon a sandy and a gravelly loam; and a deep hazel coloured strong earth, upon a brown tender clay or brick earth. The first of these soils is advantageously employed in the culture of turnips, barley, and clover, the last in that of beans and wheat. This highly favoured spot is well supplied with excellent springs; and it might be rendered far more productive than it is at present, were the inclosures enlarged, and many of those thick and useless hedge-rows destroyed, which at present encumber the middle of the Island, and render its air and climate less salubrious and wholesome than it otherwise would be. The strong heavy highland, and the old embanked marshes, have been greatly benefited by the application of chalk, in the proportion of about eight wagon loads to the acre, first cost of which 10s. 6d. per load, besides carriage. The highland grass and arable is rented on an average, at 17s. per acre; the marshes at 10s. 6d. running the whole together, and taking the produce through

through the Island on an average of five years, it may be stated thus:

Wheat	28 bushels per acre
Barley	40 ditto
Beans	32 ditto
Oats	40 ditto

The failure of the oyster trade, which before the present war, was carried on to a very considerable extent, has subjected the principal occupiers of the Island to an increased burthen in the poor's rates of from 2s. to 4s. in the pound. The tythes, great and small, including the embanked marshes, are compounded at 3s. 6d. per acre.

DISTRICT

DISTRICT THE FOURTH---Mersea Island.

Present Rent, and Value; with probable increase thereon.												Annual Produce per acre in bushels of						Tythes great & small			Poor's Rates.		
Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Marshes per acre.	Meadows per acre.	Ar. & Grafts taken together.	Hop Land.	Woods.	Forests.	Commons.	Wheat.	Rye.	Barley.	Oats.	Peas.	Beans.	Composition per acre.	Composition per £. Rent.	Increase in 20 years.	Poor's Rates in £.	Increase in 10 years.	
s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	bush.	bush.	bush.	bush.	bush.	bush.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
General Average . . . . .	17 0 - - -	17 0 - - -	10 6 1000 - - -	17 0 - - -								28	-	40	40	-	32	3 6	-	-	4 0	2 0	



## DISTRICT THE FIFTH.

*Strong heavy mixed soil upon a brown clay, or brick earth, a gravelly loam, and a tough red clay or tile earth.*

BEGINNING at ABBERTON, where the land lying south of the church, and hanging towards LANGENHOE and PELDON, consists of a strong heavy soil upon a tile earth, which has been chalked with very good effect in the proportion, and at the expence following per acre:

Eight waggon loads of chalk, first cost 10s. 6d.

per load at the wharf, or landing-place	-	4	4	0
Carting and spreading at 7s. per load	-	2	15	0
<hr/>				£. 6 19 0

The effect of which, as a manure is thought to operate for fifteen or twenty years, during which time, and for a considerable period after, the land will remain more tractable and easier managed. From Peldon to LITTLE and GREAT WIGBOROUGH, the soil is similar to the last described, but much the strongest round the church upon the hill at GREAT WIGBOROUGH. At VIRLEY and SALCOTE the land in general forms a strong deep good staple upon a brick earth, which gradually fleetens as the country rises towards TOLESHUNT KNIGHTS, LAYER BRETON, and LAYER MARNEY, where the soil consists of a thin cold clay, upon a tile earth, and a similar soil, though somewhat better stapled upon a gravelly loam.

The course of husbandry through this district, is to make a thorough summer and winter fallow for oats or barley, with a small proportion of which is sown clover, dunged when young, and after lying one year, the ley is sown with wheat upon once ploughing. The wheat etches are often dunged in the winter, and drilled with beans in the spring following, two rows upon a four furrow ridge, kept well hoed during summer, the bean etche well cleaned in the autumn, and sown again with wheat: a small portion of these etches are occasionally sown with tares, which are fed off, or left to stand for a crop, and in either case the land is fallowed again in course for spring corn. The black grafts through this district is extremely troublesome, and without winter fallowing, it is alledged to be utterly impossible to keep it within such bounds as would admit any reasonable chance for a crop of wheat.

The quantity of seed used in this district (through the heavier part of number seven, and the whole of number ten, is much the same, and) may be stated thus, viz. wheat from eleven to twelve pecks—barley from fifteen to sixteen pecks—oats from seventeen to nineteen pecks—tick and horse beans, when drilled, two furrows upon a three-foot ridge twelve pecks; the same drilled every furrow sixteen pecks, and clover sixteen pounds to the acre, producing upon an average through this district as per the index table.

25 bushels	1 peck of wheat per acre
32 bushels	1 peck of barley
38 bushels	3 pecks of oats
32 bushels	of beans

The circumstances of this district, which are further explained by the said table, are, that the average rent of the arable land is 15s. per acre: that the superior pasture is

21s.



# DISTRICT THE FIFTH---Heavy mixed soil.

NAMES of PARISHES.	Present Rent, and Value; with probable increase thereon.														Annual Produce per acre in bushels of						Tythes great & small		Poor's Rates.																		
	Arable per acre.	Pasture per acre.	Meadows per acre.	Ar. & Graft. taken together.	Hop Land.	Woods.	Forests.	Commons.	Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Improved.	Unimproved.	In severalty.	Half-yearly.	Rent per acre.	Proportion under plough.	No. of acres.	Undergrowth at what age cut	Value at the stump.	No. of acres.	Present value.	Improved value.	No. of acres.	Present value.	Improved value.	Wheat.	Rye.	Barley.	Oats.	Peas.	Beans.	Composition per acre.	Composition per £. Rent	Increase in 20 years.	Poor's Rates in £.	Increase in 10 years.	Poor's Rates in £.	
1 ABERTON . . . . .	1. d.	s. d.	s. d.																																						
2 PELDON . . . . .	15 0	- - -	15 0	- - -	- - -	- - -	- - -	- - -	15 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	24	-	36	40	-	32	-	3 6	-	-	3 0	-									
3 LITTLE WIGBOROUGH	16 c	- - -	16 c	- - -	- - -	- - -	- - -	- - -	10 0	300	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	30	6 0	16 0	24	-	32	4 0	-	-	-	-	2 3	-									
4 GREAT WIGBOROUGH	11 c	- - -	11 c	- - -	- - -	- - -	- - -	- - -	11 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	24	-	36	40	-	32	4 0	-	-	1 0	-										
5 VIRLEY . . . . .	16 c	- - -	11 c	- - -	8 6	100	- - -	- - -	11 0	15 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	24	-	36	36	-	28	4 0	-	-	1 0	-										
6 SALCOTE . . . . .	16 c	- - -	21 c	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	24	-	32	36	-	28	4 0	-	-	1 0	-										
7 TOLESHUNT KNIGHTS	16 0	- - -	21 c	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	26	-	32	40	-	-	-	4 0	-	-	2 0	4 6	1 0								
8 LAYER MARNEY . . .	15 c	- - -	15 c	- - -	- - -	- - -	- - -	- - -	15 0	4 5	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	30	8 0	15 0	26	-	32	40	-	-	-	4 0	-	-	1 0	-							
9 LAYER BRETON . . . .	16 c	- - -	16 c	- - -	- - -	- - -	- - -	- - -	16 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	30	8 0	15 0	26	-	32	40	-	-	-	3 6	-	-	1 0	4 0	1 0						
10 LANGENHOE . . . . .	18 c	- - -	21 c	- - -	- - -	13 0	900	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	28	-	32	40	-	40	4 0	-	-	1 0	2 0	0 6										

GENERAL AVERAGE deduced from the foregoing Table, shewing the produce of the arable; and difference of value between the ploughed, the woods, and the grass land; annual rent and value of each of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be conveyed) touching the present and former agricultural interests of this district.

General Average . . . . .	15 0	-	21 0	14 0	-	10 6	1370	-	-	14 0	-	-	-	17	90	-	-	-	-	60	7 0	15 6	25 1	-	32	38 3	-	32	3 11	-	1 4 1	10 0	9
Open field, partially improved and waste land	- - -	-	14 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	60	7 0	15 6	25 1	-	32	38 3	-	32	3 11	-	1 4 1	10 0	9
Difference . . . . .	- - -	-	7 0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	60	-	8 6	-	-	-	-	-	-	-	-	1 4 1	-	0 9

21s. the pasture of the second quality 14s. consequently a difference of 7s. per acre in favour of that which is properly improved. That the old embanked marshes are 10s. 6d. per acre, and that 1370 acres of salt marsh might be advantageously embanked from the sea. That the average rent of the highland grass and arable, when let together and without distinction of price, is 14s. per acre. That the undergrowth in the woodlands, cut once in seventeen years, sells at the stub for 4l. 10s. per acre. That there are sixty acres of common, which by inclosure, are capable of being augmented in their annual value 8s. 6d. per acre. That the composition at present paid for the great and small tythes is 3s. 11d. and that the same has increased 1s. 4 $\frac{1}{4}$ d. per acre within twenty years; and finally, that the poor's rates upon the present rack rents are 2s. 1od. and that they have increased 9d. in the pound within ten years.

The price of provisions, and the value of labour, in this district, and in Mersea Island, are as follow: beef and mutton 4 $\frac{1}{2}$ d. per lb.—veal and fresh pork 5d. per lb.—pickled pork 7d. per lb.—butter 10d. and cheese 6d. per lb.—flour 2s. per peck, and potatoes 1s. 3d. per bushel—Stated daily labour winter and summer 1s. 6d. per day. Threshing wheat 2s. 6d.—barley 1s. 4d.—oats 1s.—peas 2s. 4d. and beans 1s. 2d. per quarter, besides allowing as much small beer as the thrasher chooses to drink.—Head man's wages 8l. with board and lodging; boy's wages, 45s. per annum, with the same; maid servants 4l. with board, washing, and lodging; girl's 40s. per annum with the same.

## DISTRICT THE SIXTH.

*Temperate mixed soil upon a gravel, a sand, a brown tender clay, and some strong clay, or tile earth.*

BEGINNING south, and proceeding westerly of the village of FEERING, where the land upon the sides of the hills which hang towards the Blackwater river, consists chiefly of a light gravelly soil, abounding with springs, and usually denominated hollow bottomed land, that frequently subjects the wheat to the mildew, and to be root fallen. The springy places have been much relieved by hollow draining, as has also the wet heavy lands in the north quarter towards Coggershall, Earls Colne, and Little Tey: adjoining the village on the east, a light gravelly soil; but extending thence towards EAST THORP, and MESSING, a brown tender loam, of a good staple, interspersed with some very fair turnip land.

On the sides of the hills through INWORTH, GREAT and LITTLE BRAXTED, and abutting upon the meadows which lie along the Blackwater river; the land is chiefly of a loose hollow nature, but in which are found veins of strong sound land, upon a brown tender clay; thence westerly and binding upon Tiptree Heath, a thin dry soil upon a harsh gravel. This general character prevails without any material alteration through the parishes of WICKHAM BISHOP, LANGFORD, and HEYERIDGE, forming upon the higher parts of the country, very good turnip land, upon the sides of the hills, a considerable mixture; and

and along the course of the Blackwater river, a beautiful margin of excellent meadow land.

From Heybridge to LITTLE TOTHAM, a deep rich soil upon a sandy and a gravelly loam, through which are interspersed some luxuriantly rich pasture, and some tolerable turnip land. The soil of GREAT TOTHAM consists of a deep hazel coloured earth upon a brown clay, and a light gravelly soil upon a sand and gravel. The deep loamy soil has been much improved by clean chalking, at the following expence per acre :

Six waggon loads of chalk, ninety bushels each,

at 12s. per load at the wharf	-	-	3	12	0
Carriage, filling and spreading ditto at 8s. per					
load	-	-	-	2	8
					£. 6 0 0

Which dressing is supposed to last twenty years; nor is it allowed by the advocates for this practice, that with fair farming the land can ever be so completely impoverished as it seemed to be before the chalk was applied. In many parts of this neighbourhood a second chalking has been tried, but with so little effect, as entirely to discourage its repetition.

The land in the parishes of TOLESHUNT MAJOR and GOLDHANGER, forms a deep rich mould upon a gravel, in which are found some springs that occasion a difficulty in getting the turnips from off the ground. The marshes which were formerly under grass, are now very generally under the plough. Chalk has answered a very valuable purpose upon those lands, particularly when applied in sufficient quantities (*i. e.* eight waggon loads per acre) and left to melt and moulder upon the surface for three or four years before it is ploughed in, it will then intermix and incorporate very minutely with the soil, and is esteemed by far

far the best mode of first bringing 'into action, and afterwards by good husbandry, of preserving the enriching qualities of these lands.

In the parishes of TOLESHUNT DARCEY and TOLESBURY, the soil consists of a heavy compact earth upon a strong retentive tough clay, where little benefit has as yet been derived from hollow draining; and a soil of a more light and gentle nature, upon a loamy gravel, where turnips are sometimes cultivated, but always prove very detrimental to the succeeding crop.

A considerable improvement has been lately made in the rough marshes here, by removing the ants hills; the operation is performed by chopping round the hills with a heavy adze or grubbing hoe, the cutting edge of which is circular, and ten and a half inches wide; the depth of the blade, including its neck to the eye (or where the handle is fastened) is eight and a half inches; from half a dozen to half a score strokes will belt the largest hill, and loosen it from its seat, which is always left lower than the adjoining surface of the marsh, to receive and hold the rain water, by means of which, the ants are more completely destroyed. Boys follow the grubber, and carry the ants hills into the rills, and low places in the marsh, and thus a considerable increase of surface is obtained, that in the course of a year becomes profitable by getting coated with grafts, and at an expence which seldom exceeds 15s. per acre.

The culture of coriander has been much attended to in this neighbourhood, and is thus managed: old ley ground is ploughed in the beginning of March, and after the surface is completely pulverized, the seed is sown fourteen pounds to the acre; thrice hoeing and setting out the plants four inches square, will cost one guinea per acre. Average produce 10 cwt. per acre, 12s. per cwt. This is considered to be a very good preparation after once ploughing for wheat,  
and

and as the land is generally ploughed in two-yard ridges, or sketches of eight-furrows wide, a row of beans is generally planted with the coriander on each side of the open furrows between the sketches, and are usually harvested at the same time.

When carraway is sown with the coriander, from the care and attention necessarily bestowed in distinguishing the plants, the hoeing seldom costs less than one guinea and a half per acre; but the carraway is not regularly set out for a crop till after the coriander is harvested, at which time a very expensive hoeing becomes indispensably necessary.

Teazel is sometimes cultivated in the same field, the seed being sown with the coriander and caraway; but as neither the caraway or teazel come completely and regularly the second year, both crops are usually allowed to stand for the third summer: this is esteemed good management for old coarse pasture grounds, which, after three ploughings, is commonly sown with wheat, and then clean chalked at the following expence per acre :

Eight waggon loads of chalk, ninety bushels each, at 11s. 6d. per load at the wharf, or landing- place	- - - - -	4 12 0
Carriage and spreading, three turns per day, at 7s. per load	- - - - -	2 16 0

This expence occuring upon fresh lands, or where it has not been chalked before, will, with good husbandry, be quite sufficient, without any intermediate mending for twenty years.

The land belonging to the BOROUGH OF MALDEN, varies from a strong well stapled earth upon a brown tender clay, to a light gentle soil upon a gravel; upon the former a great deal of coleseed is sown for soil; mown and carried off

off to the cattle by the end of February, and succeeded with oats or barley. Upon the lighter land the culture of tares, turnips, and other green crops is very generally attended to. From Malden westerly towards WOODHAM WALTER, a thin stapled light foil upon a gravel, under which a variety of strata of red and white sand, gravel and brick earth; this land is particularly subject to burn in summer, and from its great drynes, the culture of turnips is rendered extremely uncertain. The coleseed in this neighbourhood is generally fed off, not growing sufficiently high to admit of mowing, as at Malden.

At WOODHAM MORTIMER the soil consists of a strong heavy clay upon a tile earth, a brown loam of a good staple upon a tender clay, and a light hollow foil abounding with springs upon a gravel, and which are generally drawn off by hollow drains, at an expence of about 3l. per acre. Of this improvement, a gentleman in that neighbourhood has done some hundreds of acres, and very justly conceives it to be the first, and most essential point in the improvement of this kind of land. Chalking the wet heavy lands at an expence of 5l. per acre, is very general, and found to answer so well, that with fair cropping, the land will require little or no dung, or other manure, for a period of twenty years.

At HASELEY the soil is formed of a deep hazel coloured loam upon a brown clay, and a more open and tender soil, upon a loamy gravel. Thence westerly, and ascending the country towards DANBURY and LITTLE BADDOW, a thin dry foil upon a gravel, affording little means of improvement from natural manure; unless the veins of white pipey clay which are found interspersed through these parishes, should on trial be found to answer.

The woodlands in the higher parts of this country are found very much to favour the growth of an inferior dwarf oak

oak, and hornbeam, though in Danbury Park, which hangs to the south, and is situate about midway of the hill, by far the largest and best growth of sweet chesnuts are to be seen of any in the county.

Descending towards SANDON, a blue and white sub-soil appears to unite with, and continue through tender well studded corn lands, that are bounded by the meadows which lie along the River Chelmer. Southerly from the church of Sandon, and abutting upon South Hanningfield, a strong heavy loam upon a brick and a tile earth; but west, and adjoining Great Baddow, a more free and gentle soil, chiefly upon a gravel. The blue and white clay in the parish of Sandon, has been applied with the most sensible effect upon those lands which have a brown tender bottom, rather than such as are gravelly, or possess a tough tile earth; the proportions and expence per acre, are as follows:

Stubbing, filling, and spreading forty loads of forty bushels each, at 7s. per score, including an allowance for beer	- - - - 0 14 0
Three days for a team of four horses and a driver, including the wear and tear of two tumbrrels, and allowance of beer to the driver, the whole at 15s. per day.	- - - - 2 5 0 £. 2 19 0

Where no clay is to be had (which through this neighbourhood is extremely scarce) lime is mixed with earth and dung, and applied at an expence of 5l. per acre. The clay however is esteemed by far the most preferable, being thought equal in its operation, and far more durable; not only increasing the quantity, but greatly improving the quality of the wheat, and other grain with which the land may be afterwards cultivated.

H

By

By the most skilful and industrious farmers, hollow draining is very generally attended to upon the heavy lands, and at an expence of from three pounds to three guineas per acre.

The business of butter-making has been in a great measure relinquished in this parish, from the want of good spring water, and a smoaky taste, which is communicated to the butter, when the cows feed upon some particular pastures, or when foddered with the hay which is mown from them. This has hitherto baffled every means of cure or prevention. When the cows are fed upon tares, other grafs, or hay, very good butter is readily obtained; and even when fed upon turnips, cabbages, or that they gather up the fallen leaf; by proper care and attention, the disagreeable flavour in the butter is prevented.

These obstacles to the making of good butter have led to the more general practice of sucking, which business seems to be very well understood in this parish. For this purpose the breed of cows from South Wales are most generally preferred; though the calves which they produce are often found weak and unhealthy, and seldom fat so kindly, or pay so well, as those bought in from dairies. To promote the torpor, and quick-feeding of the calf, a ball weighing about two ounces, composed of the powder of fennugreek, wheat-meal, and a small quantity of powdered chalk, blended together with mild ale, is given morning and evening just before sucking; this lulls and disposes the calves to sleep, thereby advancing their fattening, which is generally accomplished in about twelve weeks, paying 4s. 6d. per calf per week, during the whole time: This nutritive opiate is also supposed to have a very good effect in whitening the veal.

A cross produced from the South-down ram, upon the Welch ewe, is held in high estimation. The grazing of a sheep

Sheep is generally allowed to the men servants in lieu of washing: This is found to answer a good purpose in calling their attention more frequently to the flock, by which means many of the accidents to which that animal is liable, are often observed in time to remedy, or entirely to prevent.

Ascending by the course of the river Chelmer to GREAT BADDOW, the same character of soil is found as was described in the north quarter of Sandon. South, and extending towards east and west Hanningfield, a deep loamy soil, which to the westward, and abutting upon WIDFORD, and a part of Chelmsford, becomes of a moist and heavier nature, and rests upon a marly, or rather upon a chalky clay. North, and binding upon the meadows which lie along the Chelmer, the same tender well studded soil described on the east, and in the same direction through Sandon.

The chalky clay has been applied very successfully upon the gravelly soils in this parish, thirty loads of forty bushels each to the acre.

Stubbing, filling, and spreading the same, at 6s.

per score	- - - - -	- - - - -	- - - - -	0	9	0
Four horses, two tumbrrels, and a driver, five days,						
at 15s. per day	-	-	-	-	3	15
Allowance for beer upon stubbing, filling and						
spreading	-	-	-	-	0	1
Ditto for the driver	-	-	-	-	0	1
						3
						£.4
						6
						9

The land in general adjoining the town of CHELMSFORD, is found to consist of a deep rich tender loam, intermixed with some veins of gravel. The sandy loam extends easterly to Springfield and Boreham; the gravelly, southerly to Great Baddow; thence westerly, an heavier soil upon a chalky clay: Towards Writtle the light gravelly soil again appears, which at Broomfield is again lost in a

deep, rich, grey loam, upon a tender brown, and a white chalky clay.

The average annual produce, and value per acre for the last seven years of the hop culture in this neighbourhood stands thus:

6 cwt. 2 q. 18 lb. per acre, at six guineas per cwt.

or 13 $\frac{1}{2}$ d. per lb. equals	- - - - -	40 19 0
Refuse poles 300 at 7s. per hundred	- - -	1 1 0
Old bines	- - - - -	0 5 0
		<hr/>
		42 5 0

Average annual expence per acre, every possible charge included	- - - - -	29 5 8
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Total net profits per acre for seven years	£.12 19 4
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The face of the country through WEST, EAST, and SOUTH HANNINGFIELD, is very much broken into hills, and consequently composed of all that variety of soil so generally prevalent in such aspects. From South Hanningfield to RUNWELL and DOWNHAM, the land is equally broken, and to the varieties of soil observable through the Hanningfields, is to be added a larger portion of loose hollow bottomed ground, which by a due attention to hollow draining, and the application of clay, may be very highly improved. This general character continues westerly, and forms the soil of the land lying east of the church, in the parish of STOCK. Thence southerly, and abutting upon Bursted, and Mountneysing, a strong soil upon a brown clay, under which, in several places, are found veins of a perfectly pure blue, and a yellow woodland clay. The same soil and substrata continues westerly through BUTTSBURY, MOUNTNEYsing, and INGATESTONE; but thence northerly, and binding upon MARGRETTING, the country gets more hilly, the soil in general more varied, and of a heavier nature.

The

The soil of GREAT and LITTLE BURSTEAD (including the hamlet of BILLERICKY) consists of a deep rich loam upon a gravelly loam, and a brick earth, a thin heavy soil upon a tough red clay, and a deep friable mould upon a gravel.

In this neighbourhood the cows are particularly liable to slip calf, which is generally ascribed to an infectious effluvia proceeding from the first false birth, the ill effects of which is supposed to be in a great measure prevented from spreading, by immediately burying the abortion, burning straw directly over the place, and smearing the hind parts of the cow with tar; but above all, keeping her separate, and as far apart as possible from the other cows, ought never to be neglected; various reasons are assigned as the cause of this accident, but none that appear conclusive, or satisfactorily explained.

The course of husbandry practiced upon the lightest lands in this district, is to fallow and prepare for turnips, succeeded by oats or barley, with rye grass half a bushel, and trefoil 10 lbs. or one half peck to the acre; this lies one and sometimes two years, and is then sown broadcast upon the flag, with white peas, from fourteen to sixteen pecks to the acre. The pea etches are well cleaned, dunged, and sown with wheat upon once ploughing, ten pecks to the acre: part of the wheat etches are sown with rye for spring food, and then prepared again in course for turnips.

Upon the heavier land, fallow occasionally for turnips, or for coleseed for spring food; but most generally for oats or barley, with which sow clover from 14 lb. to 16 lb. to the acre; part of which is dunged when young, and followed with wheat the ensuing autumn upon the clover ley. The etches of that wheat, which was sown upon the undunged clover land, are dunged in the course of the winter, and sown with beans, two furrows upon a yard-wide ridge:

These

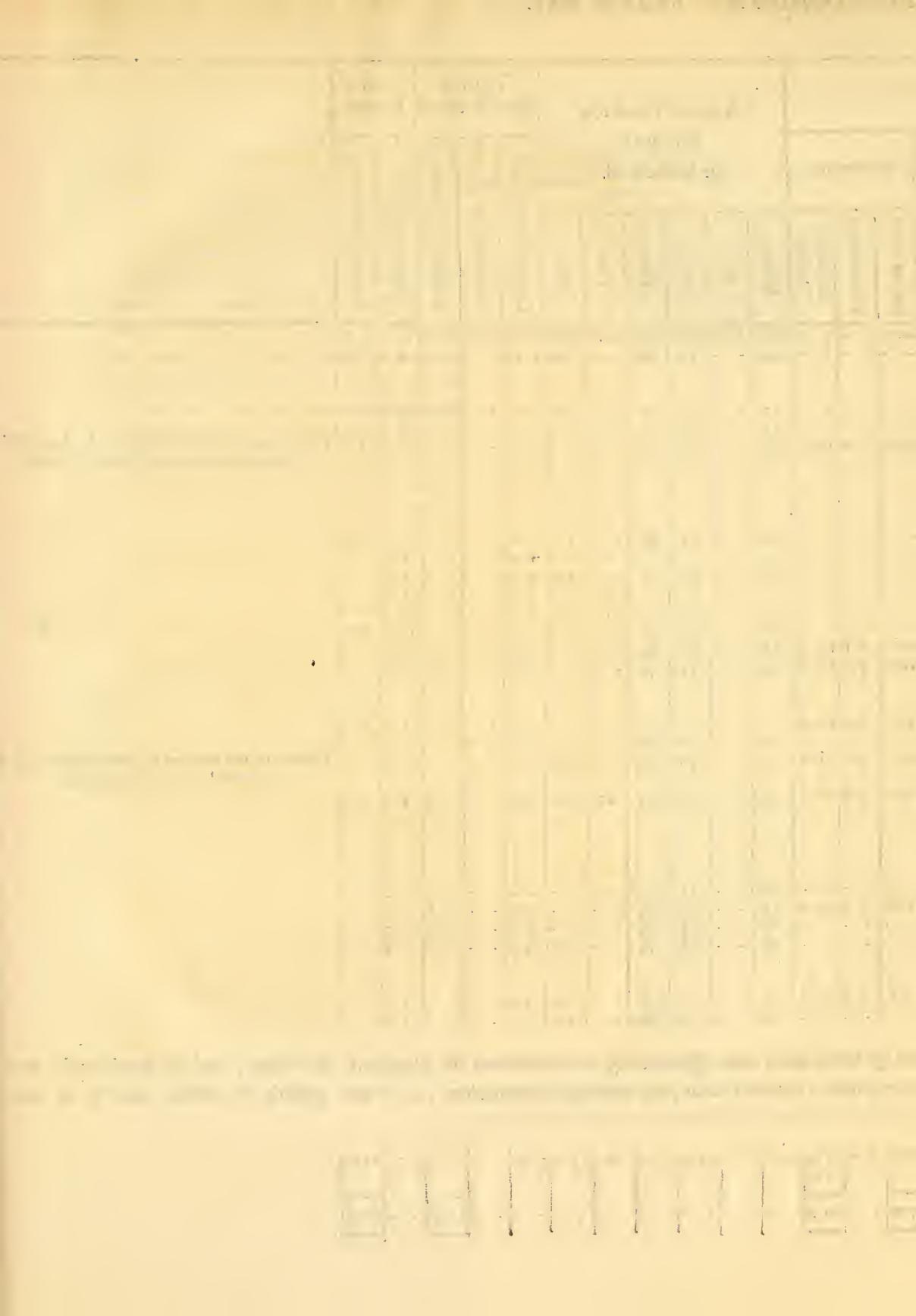
These are kept well hoed through the summer, and again sown with wheat upon once ploughing. Where the land is in high condition, a crop of oats will sometimes be taken, but the more general practice is to sow a few tares for spring food, and then make a thorough summer fallow for spring corn.

From this management, and the aid of such foreign manure as can be conveniently obtained, this district averages according to the index table,

23 bushels	2 pecks	of Wheat per acre
34 ditto	3 ditto	of Barley
35 ditto	2 ditto	of Oats
20 ditto		of Peas
23 ditto	2 ditto	of Beans

The said table also further shews that the average rent of the arable land is 14s. 6d. per acre. That the pastures of the first quality equal 26s. 7d. those of the second quality 14s. 7d. a consequent difference of 12s. per acre, between those which are partially, and those which are perfectly improved. That the average of the meadow land is 30s. 3d. per acre, and that where the arable and pasture are run together, and let without distinction of price, those lands average 14s. 7d. per acre. That the hop land is 30s. per acre. That the under woods are cut down at eleven years growth, and that they sell at the stub for 3l. 10s. per acre. That there are 3770 acres of waste commons (including Tiptree Heath) which by inclosure, are capable of being improved 10s. 4d. per acre. That the composition at present paid for the great and small tythes is 3s. 5 $\frac{1}{4}$ d. and that the same has risen, within twenty years 1s. 2 $\frac{1}{2}$ d. per acre; and lastly, that the poor's rates upon the present rack rents are 3s. 7 $\frac{1}{4}$ d. and that the same have risen 10 $\frac{1}{4}$ d. in the pound, within ten years.

Upon



DISTRICT THE SIXTH---Temperate mixed soil.

### **Present Rent and Value ; with probable increase thereon**

The 3000 acres of common is supposed to be the whole of Tintagel Head.

Cythes 6s. per acre on all the crops of corn increased 1s. within 20 years.

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

General Average . . . . .  
Open field, partially improved and  
waste land

Waite land  
Difference . . . . .

10.000-15.000 m²

Upon summing up the several statements of the value of labour, and price of provisions through this district, they stand on an average thus: beef  $4\frac{1}{2}$ d. per lb.—mutton 5d. per lb.—veal  $5\frac{3}{4}$ d. per lb.—fresh pork 6d. per lb.—pickled pork  $8\frac{3}{4}$ d. per lb.—butter  $10\frac{1}{2}$ d. per lb. and cheese 6d. per lb.—household flour 2s. per peck, and potatoes 19d. per bushel. Stated day-labour in the summer 9s. 6d. in winter 9s. per week. Threshing wheat 2s. 6d.—barley 1s. 8d.—oats 1s. 3d.—peas 2s. 4d. and beans 1s.  $2\frac{1}{2}$ d. per quarter. Head man's wages, board and lodging included, 10l. 13s. boys 3l. per ann. with the same; womens wages 4l. 13s. board, washing, and lodging included; girls 2l. per ann. with the same.

## DISTRICT

## DISTRICT THE SEVENTH.

*Temperate and heavy mixed soil, upon a brown tender clay, a gravelly loam, a brick and a tile earth.*

BEGINNING at PURLEY, where the soil in general consists of a strong deep loam upon a brick earth ; and where hollow draining has been done at six and eight yards apart, but with so small an effect, as in a great measure to discourage that important practice. From Purley to MUNDEN, a level country, with a deep rich loam upon a brick earth; this continues southerly towards LATCHINGTON, where the land lies well for draining, and forms an excellent wheat soil upon a brown tender clay. Proceeding east towards MAYLAND and STEPLE, the soil admits of little variation, forming on the higher parts of the country, a strong heavy clay; which northerly, and inclining to the embanked marshes that border upon the Blackwater, is lost in a soil of a more free and tractable nature upon a deep gravelly loam. Thence north-easterly through ST. LAWRENCE, extending to, and through BRADWELL, a deep hazel coloured loam upon a brown tender clay, and a rich friable mould upon a gravel. Returning thence south, through TILLINGHAM, the same rich friable mould prevails, forming at ASHELDON, a lighter mixture upon a gravel, which at DENCY is agreeably varied with several spots of very good turnip land.

At SOUTHMINSTER the land east of the village, and abutting upon the embanked marshes, consists of a light hollow gravelly soil, abounding with springs that are conveyed from

from off the land at a considerable expence through hollow drains.

These drains are made three feet deep, and two inches wide at the bottom, filled two feet deep with shingle brought from the sea shore, or sifted gravel—taking labour, and materials, equally into the account, they will cost two-shillings and six-pence per rod, and is an expence very generally incurred upon these kind of lands.

Upon land where the sides of the hollow drains are not liable to crumble or fall in, the drains are made in the usual manner, filling them with wood and straw; and at an expence for labour only of 3s. 6d. per score rods. Westward from the village is a deep white sandy clay; thence northerly, a stiff heavy tough clay, upon a tile earth.

The embanked marshes, which are here very productive and extensive, consist chiefly of a deep hazel-coloured loam, upon a very fine sea sand or silt. This property is extremely valuable; and would be much more so were it possible to command a supply of water during the dry season: so long as the springs are flush upon the higher country, the water continues tolerably abundant and wholesome; and is diffused through the different levels with great equality, judgment and œconomy: but when those resources fail, which unfortunately is too often the case in the summer season, the distresses in these marshes for drinking-water, and for fencing, are very great indeed.

A considerable expence is annually incurred through this neighbourhood in chalking the stiff heavy lands, and of

I which

which the following account may be taken as the average per ann.

Eight waggons of 90 bushels each, costing at the wharf, or landing place, 11s. per load - - -	4	8	0
Carting, filling, and spreading the same at 10s. 6d.			
per load - - - - -	4	4	0
		£. 8	12

Which dressing is supposed to act with an almost unabating force for the first twenty years, following a lapse of three years (which time is allowed for the chalk to melt down and incorporate with the soil) from the time that it was first applied or spread upon the ground. The same expence frequently occurs in chalking the marshes; but its effects there, are neither so observable, or so permanent, as upon the stronger higher lands.

The culture of caraway, coriander, teazel, white mustard and coleseed, is occasionally attended to and answer very well upon fresh land, where the depredations of the slug, and the wire worm, are the almost certain destruction of the first crops of grain.

The soil and other circumstances of BURNHAM are very similar to the above, saving that at Burnham, there is a greater convenience of water carriage to procure foreign manure, or to ship the produce of the farm at a less expence for market.

A thin gravelly soil prevails on the east side of CRICK-SEA church. Thence southerly, the soil varies from a stiff clay upon the hills, to one of a more gentle nature, abutting upon the marshes; westerley towards Althorne, a strong

strong heavy clay upon a tile earth; but thence north, and binding upon Southminster, a more temperate and tractable soil upon a sandy loam. At ALTHORNE, the soil in general is formed of a strong heavy compact clay, thinly studded upon a tough retentive tile earth. Hollow draining has been lately introduced, and is now practiced with very good effect, upon the wet heavy lands in this parish; the drains are from eight to twelve feet apart, and cost (labour and materials included) from 3l. to 3l. 12s. per acre. The soil of NORTH FAMBBRIDGE is a deep tender loam, upon a brown clay; which, with a considerable part of the embanked marshes that are under the plough, has been much improved by the application of from seven to eight wagon loads of chalk per acre; this is obtained with great convenience by means of the river Crouch, which affords an opportunity of its being landed (together with any other foreign manure) upon all the different farms through the parish.

Whilst the marshes remain in pasture, their herbage is very indifferent, and incapable of fattening a beast of more than twenty-four score; and even not that, in a dry summer. Small Welsh runts, and Norfolk ewes, are the stock usually grazed; but the latter must be kept upon the clovers during the early part of the summer, or the lambs will not thrive. The Southdown breed are now trying upon the marshes, but as the experiment is quite new, no report can be made thereon.

As the country rises northerly towards COLD NORTON, STOW MARYS, and WOODHAM FERRERS, it breaks into hills, which are covered with a wet heavy soil, upon a brick and a tile earth. South from Woodham Ferrers and towards Hockley, the soil becomes of a more gentle

nature, affording a small portion of turnip land, lying upon a gravel. Towards RETTENDEN the soil also varies; but through the higher parts of that parish, a close wet heavy soil prevails, upon a tile earth: here a considerable inconvenience is often experienced through the want of water, there being no other dependance than pits, which are generally dried up in summer, and only two springs (and they not constant) fit for domestic use in the whole parish.

The accident of slipping calf, which through this neighbourhood was very prevalent some years ago, is now thought to be very much checked by the practice of bleeding the cows when they are about one-third of their time gone with calf.

An evident want of cottages through this district occasions that scarcity of hands which encourages a spirit of disobedience as well among the natives as among those trampers, upon whom the labour of the county in a great measure depends; even those who have the care of the teams, seem totally divested of that pride, (in seeing their horses look well) which so strongly characterizes the same description of servants in most other places. The master's eye, late and early, and his constant attendance in the stable, becomes as indispensable as in any other department of his business. Thus adding to his other toils and anxieties, a duty, which in most places of the kingdom, the farmer's life is usually exempt from.

The husbandry of the more temperate soils in this district, is to fallow and manure for turnips, or coleseed, the latter in general fed off, though it sometimes is allowed to stand for a crop. The turnip, or coleseed land, is sown with oats or barley; together with sixteen pounds of red clover to the acre.

acre. The clover ley sown with wheat eleven pecks to the acre. The wheat stubbles dunged, and drilled with beans, two rows upon a four-furrow ridge; kept well hoed, and succeeded with wheat, which is sometimes followed by oats, though more generally sown with tares, fed off in the spring, and then thorough fallowed again for spring corn.

Upon the heavier land first fallow for oats, with which sow clover dunged when young, and the ley sown with wheat. The stubbles of which are thorough fallowed, dunged, and sown with beans, which are kept well hoed, and again succeeded with wheat. The wheat stubbles are sown with oats; and then fallowed again in course for oats or beans. This practice, aided by the foreign manure annually expended in the district, produces according the pre-fixed table

24 bushels	1 peck of Wheat
35 bushels	2 pecks of Barley
41 bushels	of Oats
24 bushels	of Peas
24 bushels	of Beans per acre.

Which table also further shews, that the average rent of the arable land is 14s. 1d. per acre; that the prime pasture is 20s. the partially improved 13s. 9d. consequently a difference in favour of the more perfectly improved pastures of 6s. 3d. per acre. That the inclosed marshes average 14s. per acre. That where the highland grafts and arable are let together, their average annual rent equals 13s. 10d. per acre. That there are 450 acres of waste land, which by inclosure may be improved above its present annual value 11s. 4d. per acre. That the composition at present paid for the great and small tythes is 3s. 3 $\frac{3}{4}$ d. and that the same has increased

increased within twenty years 1s. 3d. per acre. That the poor's rates upon the present rack rents are 2s. 11d. and that they have increased within ten years 1s.  $\frac{3}{4}$ d. in the pound.

The value of labour, servants wages, and price of provisions, may be referred to the preceding district.

DISTRICT

DISTRICT THE SEVENTH---Temperate and heavy mixed soil.

NAMES of PARISHES.	Present Rent, and Value; with probable increase thereon.														Annual Produce per acre in bushels of										Tythes great & small		Poor's Rates.			
	Arable per acre.		Pasture per acre.		Marshes per acre.		Meadows per acre.		Ar. & Gra. taken together.		Hop Land.		Woods.		Forests.		Commons.		Wheat.		Rye.		Barley.		Oats.		Peas.		Beans.	
	Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Improved.	Unimproved.	In severality.	Half yearly.	Rent per acre.	Proportion under plough.	acres	years	s.	d.	No. of acres.	No. of acres.	s.	d.	No. of acres.	s.	d.	No. of acres.	s.	d.	No. of acres.	s.	d.	No. of acres.	s.
1 PURLEY . . . . .	14 6 -	-	14 6 -	14 6 -	-	-	-	-	14 6 -	-	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -	14 6 -
2 MUNDEN . . . . .	14 0 -	-	18 0 -	-	-	-	-	-	15 c -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 LATCHINGDON . . .	15 0 -	-	15 0 -	15 0 -	-	-	-	-	15 0 -	15 0 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 MAYLAND . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 STEPLE . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 ST. LAURENCE . . .	13 0 -	-	13 0 -	-	13 c -	-	-	-	13 c -	13 c -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7 BRADWELL . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8 TILLINGHAM . . . .	15 0 -	-	-	-	15 c -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9 ASHELHAM . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 DENDY . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11 SOUTHMINSTER . . .	15 0 -	-	-	-	-	15 0 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 BURNHAM . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13 CRICKSEA . . . . .	14 0 -	-	-	-	-	14 c -	-	-	-	14 0 -	14 0 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14 ALTHORNE . . . . .	15 0 -	-	13 9 -	-	15 c -	-	-	-	15 0 -	15 0 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15 NORTH FAMBRIDGE	12 0 -	-	12 0 -	12 0 -	-	-	-	-	12 0 -	12 0 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16 COLD NORTON . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17 STOW MARY's . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18 WOODHAM FERRERS	13 6 -	-	13 6 -	-	-	-	-	-	13 0 -	-	-	-	-	-	-	-	-	40	7 6 20 0	24	-	32	40	-	24	3 0 -	1 0	3 6 0 6		
19 RETTENDEN . . . . .	14 0 -	-	22 c -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	7 6 20 0	24	-	32	40	-	24	3 0 -	4 0 -	3 0 1 6		
GENERAL AVERAGE deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.																														
General Average . . . . .	14 1 -	-	20 0 13 9 -	-	14 0 -	-	-	-	13 10 -	-	-	-	-	-	-	-	-	450	7 0 18 4 24 1 -	-	35 2	41	24	24	3 3 1 -	-	1 3 2 1 1 0 2	-		
Open field, partially improved and waste land	-	-	13 9 -	-	13 0 -	-	-	-	13 10 -	-	-	-	-	-	-	-	-	450	7 0 18 4 24 1 -	-	35 2	41	24	24	3 3 1 -	-	1 3 2 1 1 0 2	-		
Difference . . . . .	-	-	6 3 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	7 0 18 4 24 1 -	-	-	-	-	-	-	-	-	1 3 -	1 0 2	

# THE AMERICAN

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AND PHILOSOPHY

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ASSISTED BY A STAFF OF SPECIALISTS

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WITH A PRACTICAL APPROACH TO THE STUDY OF

THEOLOGY AND PHILOSOPHY IN THE MODERN WORLD

AND WITH A FOCUS ON THE INTERACTION BETWEEN

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## DISTRICT THE EIGHTH.

*Temperate mixed soil, upon a gravelly loam, a gravel,  
and a brick earth.*

BEGINNING at WICKFORD, whence easterly to RAWRETH, the soil is of a mild and tractable nature, well studded and lying upon a brown tender clay ; continuing the same course through HOCKLEY, the soil and substrata are very similar ; but thence to SOUTH FAMBIDGE, a strong and heavier soil, upon a brick earth, through which are found some small veins of gravel. East of Fambridge church, and binding upon Canuden, the same character of soil prevails, the gravelly veins affording winter springs ; which too frequently fail, or entirely vanish, in the dry season. South, and binding upon Asheldon, the soil is of a tender nature, upon a gravelly loam. Part of the embanked marshes (which are here of considerable extent) are under the plough, and are usually chalked with thirty-five Graveshend cart loads, of thirty bushels each, per acre : delivered at the wharf or landing place at 3s. 7d. per load    6 5 5  
 This will make about twenty-six tumbrell loads of forty bushels each ; the carting of which upon the marshes, including the driver, equals about 6d. per load    - - - - -    0 13 6  
 Filling, spreading, and allowance of beer upon the same, at 2d. per load    - - - - -    0 4 4

£ 7 3 3

The land should be well cleaned before the chalk is applied, and which, at all events, should be laid upon the ley or grass

grass ground for a few years, in preference to that which is ploughed or broken.

The greater part of the parish of ASHELDON consists of a strong heavy wet soil, upon a tough clay or tile earth, and a soil of a more tractable nature, upon a gravelly loam. In neither of these are there any living springs, so that water through the greater part of the year is brought from Rochford, four miles, for domestic use; and as the ponds that are formed for supplying the cattle are often dried up in the summer season, inconveniences and expences are continually accruing that are almost inconceivable.

Ascending southerly towards RALEIGH, the soil is formed of a deep tender loam, upon a brick earth, which has derived very considerable advantages from hollow draining; but as the country is a good deal broken, it is still found necessary to grip, or water furrow, at about two poles distant, upon the sides of the hills, to break the fall of the surface water, which otherwise would grind and wear the land into gullies, by washing the looser soil into the lower grounds.

Descending east from Raleigh towards HAWKESWELL, a deep mellow loam, upon a tender clay, under which, in many places, at the depth of about two feet, are found veins of red and yellow sand. In this direction were observed some excellent turnips. The deep free soil continues to ROCHFORD, where it forms a rich friable mould, upon a sandy loam, and gravel abounding with springs, that are not only constant, but furnish an ample supply of wholesome water to the adjoining neighbourhood, in the dryest seasons. Coleseed is frequently sown and fed off green with hogs, and then left to stand for a crop, which is said to answer extremely well.

From

From Rochford, a strong rich country to LITTLE STAMBRIDGE, which continues to the rise of the hill at CANUDON, here the soil gets somewhat lighter, but descending towards PAKELSHAM, a deep rich hazel coloured loam, extending to, and is bounded by the embanked marshes

In this neighbourhood, a great deal of coleseed is sown for sheep food, or mown and carried to the fattening cattle, to which it is given in the yard, or in the stalls, mixed with hay. The dung produced in this way, is esteemed particularly strong and good.

From Pakelsham to GREAT STAMBRIDGE the land is of a deep free and tractable nature, upon a brick earth, in which there are found some veins of gravel, that continue without any material variation through Rochford to EAST-WOOD: returning thence easterly, through SUTTON and SHOPLAND, a rich deep soil prevails, upon a brown tender clay. Thence through BARLING, LITTLE and GREAT WAKERING, NORTH and SOUTH SHOEBOURY, the soil is similar to the last described, saving that along shore, to the eastward of the Ness Point, and extending towards Southend, a light gravelly soil prevails, upon which turnips are cultivated to great advantage. Thence to SOUTH CHURCH and PRITTLEWELL, the same character of soil, which to the northward of Southend, and in the more interior parts of those parishes, is lost in a deep rich mellow earth, upon a gravelly loam and brick earth.

Westerly from LEE, and continuing the ridge along shore towards South Benfleet, a gravelly soil prevails, similar to that at Southend. Thence northerly, through HADLEY, towards Westwood, a dry soil upon a gravel, and one more wet and heavy upon a gravelly loam: this mixture continues

to South Bemfleet and Thunderley, where the country being much broken into hills, affords a great variety of soil, the general character of which, is that of wet heavy land.

The course of husbandry upon the lighter lands in this district, is to dung and prepare for sowing turnips by Old Midsummer, or for coleseed somewhat earlier; this latter is fed with hogs, and then left to stand for a crop; mown and carried to the cattle, or fed off with sheep; in either of the latter cases, the coleseed land is sown with oats or barley, together with fifteen pounds of red clover, or twelve pounds of trefoil and one bushel of rye grass to the acre. The turnip land is sown with spring corn and grass seeds in like manner. When the coleseed is left to stand for a crop, it is usually succeeded with white peas, winter or summer tares for a crop; the etches of which, are well cleaned and sown with wheat the same season, as are the clean clover leys. Where clover and ray grass are sown, the land generally lies two years under grass, and is then sown broadcast upon the flag, with white or grey peas. The pea etches are sown with wheat, the stubbles of which are dunged, and winter fallowed for oats or barley, and then lie over in course for turnips or coleseed; this latter practice forms a double routine or series of crops, which require eight years. To render the whole more completely distinct and intelligible, it is stated thus:

<i>1<sup>st</sup> Series</i>	<i>2<sup>d</sup> Series</i>	<i>3<sup>d</sup> Series</i>
1 Turnips	or 1 Coleseed	or 1 Tares or Peas for a crop
2 Oats or Barley	2 Crop ditto	2 Oats or Barley
3 Clover	3 Peas or Tares	3 Clover and ray Grass
4 Wheat	4 Wheat	4 Ditto
		5 Peas
		6 Wheat
		7 Barley or Oats
		8 Turnips or Coleseed

In this rotation of crops no fallowing is necessary, but in a short preparation for turnips or coleseed.

Upon the temperate lands, first, thorough summer and winter fallow for oats or barley, with which sow sixteen pounds of red clover, or in lieu thereof, six pounds of white Dutch clover, and ten pounds of trefoil per acre. Clover ley sown with wheat, the etches of which are dunged, and sown with beans that are kept well hoed through the summer, and again sown with wheat; after which, a crop of oats or barley is sometimes taken, but most generally the wheat stubbles are haulmed, and sown with winter tares for spring food, then dunged and prepared for coleseed, fed with hogs, left for a crop, and succeeded with wheat; the stubbles of which, are dunged, sown with beans, which are kept well hoed and fallowed by a second crop of wheat; then fallow in course, for oats or barley. In this routine of crops, a thorough summer and winter fallow, and a short preparation for coleseed only occurs once in twelve years. The whole is esteemed clean good farming, and when the bean land is not too loose and mellow, it is always sure to produce excellent wheat; this practice, aided by the application of chalk, noticed in the journal, produces according to the index table, the following average:

26 bushels	2 pecks of Wheat
34 bushels	3 pecks of Barley
40 bushels	2 pecks of Oats
23 bushels	of Peas
27 bushels	of Beans per acre

The said table also shews, that the average rent of the arable land is 14s.  $8\frac{1}{4}$ d. of the pasture 15s. of the embanked marshes 11s.  $1\frac{1}{2}$ d. of the meadow land 15s. and of

the highland pasture, when let together, and without distinction of price, 14s. 1d. per acre. That there are 200 acres of improvable common, which by inclosure, may be augmented in its annual value 9s. per acre. That the composition at present paid for the great and small tythes is 3s. 4½d. and that the same has increased within twenty years 1s. ½d. per acre. That the poor's rates upon the present rack rents are 3s. 1d. and that the same have increased 10½d. in the pound within ten years.

The value of labour and price of provisions is referred to district the sixth.

DISTRICT

## DISTRICT THE EIGHTH---Temperate mixed soil.

NAMES of PARISHES.	Present Rent, and Value; with probable increase thereon.														Annual Produce per acre in bushels of						Tythes great & small		Poor's Rates.						
	Arable per acre.		Pasture per acre.		Marshes per acre.		Meadows per acre.		Ar. & Grafts taken together.		Hop Land.		Woods.		Forests.		Commons.		Composition per acre.		Composition per £. Rent		Increase in 20 years.						
	Enclosed.	Open Field.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	bush.	bush.	bush.	bush.	bush.	bush.	bush.	bush.	s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	
1 WICKFORD . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2 RAURETH . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3 HOCKLEY . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4 SOUTH FAMBURG . . . . .	14 0	-	-	-	-	-	-	-	11 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5 ASSINGDON . . . . .	13 0	-	-	-	-	-	-	-	13 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6 RALEIGH . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7 HAWKSWELL . . . . .	13 6	-	-	-	13 6	-	-	-	13 6	1 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8 ROCHFORD . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9 LITTLE STAMBRIDGE . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100 5 0	15 0	16	32	40	24	24	3 0	-	0 6	2 0	0 6
10 CANEDDON . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11 PAKELSHAM . . . . .	13 6	-	-	13 6	-	12 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12 GREAT STAMBRIDGE . . . . .	15 0	-	-	15 0	-	-	-	-	15 0	1 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13 EAST WOOD . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14 SUTTON . . . . .	15 0	-	-	15 0	-	-	-	-	15 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15 SHOPLAND . . . . .	15 0	-	-	15 0	-	-	-	-	15 0	1 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16 BARLING . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17 LITTLE WAKERING . . . . .	16 0	-	-	16 0	-	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18 GREAT WAKERING . . . . .	16 0	-	-	16 0	-	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19 NORTH SHOEBOURY . . . . .	16 0	-	-	16 0	-	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20 SOUTH SHOEBOURY . . . . .	16 0	-	-	16 0	-	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21 SOUTH CHURCH . . . . .	17 0	-	-	17 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22 PRITTLEWELL . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23 LEE . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24 HADLEIGH . . . . .	12 0	-	-	12 0	-	-	-	-	-	-	-	-	-	-	-	-	-	100 4 0	12 0	24	32	32	22	-	3 0	-	2 6	1 0	

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.



## DISTRICT THE NINTH.

## COMPREHENDING

*The Islands of FOULNESS, WALLASEA,  
POTTON, HAVEN-GORE, NEW ENGLAND,  
and CANVEY.*

*All consisting of a deep rich hazel coloured loam, upon a fine sea sand or silt, ouze, or sea clay: The husbandry of which, equally applies to the embanked marshes, and all such lands as have been produced by, and enclosed at different times from the sea.*

THROUGH the whole of this country, which is evidently derived from the same source, and of which there can be no doubt of its having been originally formed and superinduced by the sea; the corresponding levels, or those intakes effected at the same period of time, are found to consist of a perfectly similar surface and substrata, and to be equally tender, rich, and luxuriant in all their productions. The higher levels, or those intakes which have been accomplished in more modern times, are, from the additional quantity of animal or vegetable remains, which the sea water, since the earlier embankments has deposited upon them, become so far abundant and generally fruitful in their produce, as in a great measure to disregard the almost unceasing operation of the plough.

On many of those lands it is much to be regretted, that there is so great an indifference to restore to the soil, in the form

form of manure, the useless and putrid remains of its former produce.

Where the water upon the lowest levels is run down to a proper point, and where any attention has been paid to the improvement of the surface, the herbage is more certain in a dry season, and more applicable to the purposes of grazing, than upon the rich and deeper stapled lands, which form the higher levels.

A regular step of ascending planes is distinctly to be traced from the first embankments; rising in richness and in height to the present salttings. These are still open to the sea, and are liable to a slight overflowing from the top of the spring tides; and as every tide makes an increase in their height by depositing its sediment on their surface; and as upon all these salttings there is a constant and regular increment of soil from the annual growth and decay of vegetables, these marshes in a few years will be raised to the highest level of the tides, and thus without the industry of man will the sea be excluded from the shores, and retire further from them.

From the situation, general structure, and materials, of which these islands are formed; it is obvious, that they can afford no springs of water; and consequently, that the only supply for drinking, or for fencing, is to be obtained from the rain, or from the melted snows: this forms but a precarious and scanty dependance, which in the summer season is frequently dried up, or by putrefaction rendered extremely injurious to the health of the inhabitants, and too frequently also to that of the horses and cattle: Hence there are but few resident occupiers in the islands; and in particular dry seasons, the larger stock are driven from Foulness to Shobbury for water; and in like manner from the other islands, and

and embanked marshes, the cattle are driven at much expence and inconvenience to water upon the higher lands.

About two and a half acres of the feeding marshes are usually allowed during the six summer months, to the grazing of a runt of about thirty-six score: horses, cows, and sheep are generally depastured in the same marshes for the remainder of the year, feeding them down as close, and as bare as possible by the end of January, at which time they are shut up for the spring, and for the early summer's growth.

Lincoln, Leicester, Southdown, and every breed of polled sheep are preferred to those of the horned kind. The home or marsh-bred wethers, from a cross between the Lincoln and Welsh, when fat, at two years old, will weigh twenty pounds per quarter, and six pound to the fleece. The cross between the Lincoln and Leicester at the same age, will weigh twenty-four pounds per quarter, and eight pounds to the fleece. These breeds are held in equal estimation, and with proper care on the part of the shepherd, are always kept healthy, and found to answer extremely well.

The Scots and other cattle, brought from countries watered with lively and refreshing streams, are very subject to the red-water about Midsummer, but which being timely observed, the remedy is not very difficult. A scouring also frequently comes on about Michaelmas, which is only to be stopped by immediate removal and change of food; if long unobserved or neglected, it always proves fatal. The pole-evil and fistula are extremely troublesome among the horses, every effort to prevent their gathering has hitherto proved ineffectual, and to cure them after the ulcer is broke, is held to be a very uncertain and almost endless task. The young horses which are bred and depastured through these islands, in very dry seasons,

seasons, are subject to a disease, which relaxes their whole frame, and occasions them to tumble and stagger about in a most extraordinary manner. They are frequently found sitting upon their hind parts, like cats before a fire. This is referred to the badness of the water, and like the scouring among the bullocks, if taken in time, is to be remedied by an immediate removal to the higher lands, which gradually restores the use of the limbs; but there is no change of food, of situation, or of care afterwards, that can completely restore the animal to its natural vigour.

The most approved husbandry in these islands, and in those embanked marshes along the coast, which have been enclosed a great length of time from the sea, and have not been chalked; is first to apply chalk upon the ley or swerd ground, about six waggon loads, of ninety bushels each, to the acre. This dressing is recommended to lie upon the surface for three or four years; the marsh then to be very neat and fleetly ploughed, and sown with white oats upon the flag, from sixteen to eighteen pecks per acre. The oat etches sown with white or brown mustard, a peck and a half per acre, and followed with beans, springed or sown every other furrow, from twelve to fourteen pecks per acre. The beans hoed twice, at 10s. 6d. per acre, to which occasional hand-weeding is added, costing from 6s. to 8s. per acre. The bean etches are sown with wheat broadcast, eleven pecks to the acre, left neatly dressed, and well water furrowed, costing 2s. 6d. per acre. The wheat is twice carefully wed and hoed, at an expence of from 12s. to 14s. per acre, and followed by oats, with clover fourteen pounds to the acre. In the spring and earlier part of summer the clover is fed with sheep, then left for seed, and succeeded with wheat, which is left well water furrowed and in the spring and

and summer following is wed as before. Three series of crops, of seven years each, will thus occupy a term of twenty-one years, and will run as follows:

<i>1st Series</i>	<i>2d Series</i>	<i>3d Series</i>
1 Oats	1 Summer fallow	1 Tares mown or fed off
2 Mustard	2 Coleseed	2 Then sow mustard or coleseed for a crop
3 Beans	3 Beans	3 Beans
4 Wheat	4 Wheat	4 Wheat
5 Oats	5 Oats	5 Oats
6 Clover	6 Clover	6 Clover
7 Wheat	7 Wheat	7 Wheat

Which routine of cropping is according to the common marsh practice, and produces on an average of twenty-one years,

- 30 bushels of Wheat
- 32 ditto of Beans
- 40 ditto of Oats
- 24 ditto of Mustard
- 30 ditto of Coleseed per acre

The stated wages to the ploughmen through the islands, is, during the winter months, 10s. 6d. per week wet or dry; when the days are long enough to work after attending their horses, work is either let out to them, or 6d. per day allowed to them for jobs; the former the labourer always prefers. The harvest usually begins the first week in August, and ends about the middle of September. The price for cutting, binding, and inning of wheat, oats and beans, 10s. 6d. per acre, with an allowance of four bushels of malt, and two pounds of hops per man; each man will harvest of this corn about fourteen acres; to this may be added as harvest work, cutting and thraving the mustard seed at 10s. 6d. per acre, and thrashing 5s. per quarter, done in the field upon a sheet,

L and

and in the same manner as coleseed; which latter crop is not included in the harvest, being cut and thrashed by the bag of two bushels each, costing from 10d. to 16d. per bag, as the crop may be more or less casty or valuable.

The price of provisions at this time upon the islands, is beef 5d. per lb.—mutton  $5\frac{1}{2}$ d. per lb.—veal 6d. per lb.—fresh pork 6d. per lb. and pickled pork 8d. per lb.—household flour 2s. 2d. per peck, and potatoes 2s. per bushel. The lookers or superintendants over the farming business in the islands, generally accommodate the workmen upon the different farms. They cook, wash, lodge, and find them in small beer for 2s. per week.

The islands in general are free of great tythes, saving a small modus paid by some particular farms to the neighbouring parishes. The vicarial tythes are generally compounded, and the poor's rates are from 1s. 6d. to 2s. 6d in the pound.

## DISTRICT THE TENTH.

*Strong heavy mixed soil upon a brown clay, or brick earth, a gravelly loam, and a tough red clay, or tile earth.*

THE country comprehended within the parishes of BUERS GIFFORD, PITTSEY, VANGE, BASILDON, LANGDON CRAY, RAMSDEN CRAY, RAMSDEN BELL-HOUSE, NEVENDEN, NORTH and SOUTH BEMFLEET, and THUNDERSLEY, is very much broken into hills, the sides and tops of which, consist of a wet heavy soil upon a tile earth, much stronger than in the vallies and lower grounds.

The closeness and retentive nature of the red tough clay, which generally pervades this district, require that the hollow drains should be made within twelve feet of each other. The usual mode of forming them is thus: the drains are first drawn out, or opened six inches deep by ploughing three bouts, or six furrows to each drain, with the common foot plough; one spit of fourteen inches is then dug out with the land ditch spade, forming the drain twenty inches deep from the surface, and one inch wide at the bottom. This is filled with straw only, and cost, materials included, about 2s. 6d. per score rods. The drains leading to the outfalls are usually made about eight inches deeper than the lateral ones, filled with elm wood and straw; which materials included, will cost about 4s. 6d. per score. The whole upon a fair trial, has been found to answer inimitably well.

The length of carriage through the northen parts of this district, has in a great measure precluded the use of chalk, and lime has there been substituted in its place, mixed with earth, and farm yard dung, in the following proportions per acre:

Seventy-five bushels of shell lime, the first cost of which at the kiln is 7s. per hundred of 25 bushels	x	1	0
Carriage of ditto	-	-	-
Stubbing or digging 200 bushels of road or hedge greens	-	-	-
Twice turning and mixing the same, with as much farm-yard and stable dung as when rotten, will make a bulk of 10 tumbrell loads or 400 bushels	o	3	0
Filling and spreading ditto at 4s. per score loads	o	2	0
Carting ditto upon the field from the heap 6d. per load	-	-	-
Driver half a day's work at 1s. 6d. per day	-	o	0
Allowance for beer at 2d. in the shilling upon 8s. 9d. being the value of all the above labour	o	1	5½
Total	£.	2	17 2½

N. B. No allowance is made for the value of the dung, or the expence of carting it from the yard to the earth heap, as the one is the natural produce, and the other the ordinary business of the farm.

The husbandry of this district may be strictly referred to that of No. 5. According to the tables hereto annexed, this district produces on an average of five years,

22 bushels 2 pecks of Wheat
32 bushels " " of Barley
32 bushels 2 pecks of Oats
28 bushels " " of Beans per acre.

From the same table it also appears that the average rent of the arable and pasture land is 13s. 4d. per acre. That 430 acres



## DISTRICT THE TENTH---*Heavy mixed soil.*

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

### General Average

**Open field, pa  
waste land**

Difference in  $\Delta$  between  $\Delta_{\text{obs}}$  and  $\Delta_{\text{cal}}$

acres of commons may be enclosed to advantage, and advanced in their annual value 7s. 4d. per acre. That the composition at present paid for the great and small tythes is 3s. 5d. and that the same has increased 1s. 1 $\frac{1}{4}$ d. per acre within twenty years; and also that the poor's rates upon the present rack rents are 2s. 11 $\frac{1}{2}$ d. and that they have increased 1s. in the pound within ten years.

The value of labour and price of provisions are to be referred to the next ensuing.

## DISTRICT

## DISTRICT THE ELEVENTH.

*Being that of a temperate mixed soil, upon a sandy and a gravelly loam, a pure sand, a pure gravel, a chalk, a brick, and some tile earth.*

BEGINNING at DUNTON, where the soil in general is of a thin cold nature, upon a brown clay. Ascending thence to LANGDON HILLS, a gentle sandy loam prevails upon a gravel, intermixed with veins of a compact loam upon a brick earth. The lower part of the parish abutting upon Vange consists of a wet heavy soil, upon a tile earth. These last lands are particularly subject to black grafts, and a yellow weed called joy, or wild-gold : fallowing for spring corn is admitted to be the most effectual way of destroying the black-grafts ; and hoeing and weeding (which by the bye is an almost endless labour) the wild-gold.

Southerly, to FOBBING, CORINHAM, and STANFORD LE HOPE, the soil is of a light and gentle nature, affording excellent turnips : This continues north-westerly to HORNDON ON THE HILL, where the land lying west of the village, towards Orsett, and Bulvan, consists of a thin wet heavy soil upon a tough red clay.

At MUCKING a well stapled gravelly loam, and a lighter soil upon a gravel. Thence through EAST to WEST TILBURY, the higher parts of the country consist of a thin burning soil upon a gravel ; and the sides of the hills which hang towards the embanked marshes, of a deep gravelly

gravelly loam, abounding with springs, that are constant through the year, and afford an excellent supply of water to the adjacent marshes in the dryest seasons

Westerly towards CHADWELL, LITTLE and GREYS THURROCK, the higher country is equally broken into hills, and the low land or marshes, are formed of a deep rich sandy loam upon a silty clay or sea ouze, and are well supplied with water through the dryest seasons. At the depth of from ten to fifteen feet below the soil at Greys Thurrock, a stratum of chalk is found of the same quality with that on the opposite side of the Thames, at Gravesend. The surface and structure of the highland and marsh country is nearly the same through WEST THURROCK and PURFLEET; but ascending thence east towards STIFFORD, and thence northerly to ORSETT and BULVAN, a light gravelly soil upon a gravel, a brown tender clay, a chalk and a brick earth.

The commons and low grounds in these parishes, called the fen, though strong good land, and in general affording very good herbage, are, from their being subject to frequent inundations from the higher country, found to communicate the rot in sheep, and at such times very much to injure the cattle that depasture upon them.

Proceeding thence southerly to CHILDERTON, GREAT HORNDON, INGRAVE, and HUTTON, a light tender soil, upon which turnips are partially cultivated, and a firm stronger soil of a good staple, upon a brown and a yellow or a woodland clay; the whole affording excellent pasture, and very good corn land. Crossing the great road, and proceeding thence westerly through SHENFIELD, and thence southerly to SOUTHWEALD, an  
hazel

hazel coloured loam of a fair staple, upon a brick earth, and a lighter soil upon a gravel.

The heavier lands in this neighbourhood, might be much benefitted by hollow draining, but this material improvement is too much neglected, nor is it without pain to be observed, that so little attention is paid to the removal of the road and hedge greens. These often rise above the level of the fields and highways, and by preventing the discharge of the water, prove as injurious to them, as they are a reproach to the farmer who suffers them to remain so: the inclosures too, in many places, are unnecessarily small; the land is thus choaked and smothered with useleſs hedgerows, that are filled with old pollards, and rubbish of every kind, which draw and exhaust the land for several poles deep in every field; for this latter evil however, it is but just to observe, that probably no blame ought to attach upon the tenant farmer.

Proceeding southerly from south-weald to GREAT WARLEY, a mixture of gentle soils, which to the eastward of the village, and towards LITTLE WARLEY are gradually lost, in a strong heavy soil upon a yellow clay.

The aspect of the country here is broken and irregular, and although the sides of the hills are found to teem with a number of springs, they are not so generally a subject of complaint, as in many other places.

The land lying on the north side of the churches of CRANHAM and UPMINSTER, forms a cold wet soil of a thin staple upon a tile earth. Thence southerly to NORTH and SOUTH OKENDEN, a deep gentle loam upon a tender clay and gravel. Thence to AVELEY a well stapled friable mould upon a gravelly loam, and a thin dry foil upon

a rank sand. The highland parts of this parish may be advantageously employed in the culture of turnips, wheat, barley, and oats, either broadcast or in drills ; and though the common husbandry in general prevails, the following system is particularly recommended, being grounded on the practice of a very intelligent farmer in this parish ; viz. wheat stubbles sown with tares or rye for spring food, then dressed with raw dung, ten loads to the acre, ploughed under upon four yard stretches, carrying the furrows or slices about ten inches wide. The ground is then planted with potatoes, dibbing the seed in upon every furrow, at the distance of ten inches apart, and about four inches deep ; thus forming a square of about ten inches, from plant to plant, and costing for cutting, dibbing, and dropping the sets, about 8s. per acre. In the course of the summer, the plants are once hoed and moulded up, at 4s. 6d. per acre. The planting is generally finished by the first of June ; and about the first of November the crop is ripe, and ready to be taken out of the ground, which operation is usually performed with a three-pronged fork, and cost, gathering and housing included, about 40s. per acre. The average produce is estimated at six tons, and reckoning 126 lbs. to the cwt. will equal 15,120 lbs. per acre. As soon as the potatoe land is cleared, and properly prepared, which will generally be accomplished by the middle of November, white hotspur peas are planted for podding, for the London market, and are usually sold in the field, at 5l. per acre, reserving the haulm or straw for hay, which in a favourable season, makes excellent food for horses or cattle. The pea land is then well cleaned with the horse hoe, and upon once ploughing, turnips are sown ; and just before the young plants are observed to be cutting the ground, the field receives a light top dressing of soot, ashes, or the most portable manure that can be con-

M veniently

veniently obtained. This dressing, upon frequent trial, has been found to have had a very good effect in preserving the infant turnip plant from the depredations of the fly. The turnips are generally hoed at 5s. per acre, fed off with sheep, and succeeded with oats or barley; drilled nine inches apart, with Cook's machine, requiring for seed, about four bushels of the former, and three bushels of the latter, and each yielding about forty bushels per acre. A second drilling takes place to put in the clover feed, which is generally deposited in the intervals between the rows of corn ten pounds to the acre; is usually dunged when young, and is always observed to be a stronger, more uniform, and better plant, than where one-third more seed is sown broadcast to the acre. Each drilling operation for grain and seeds, every expence included, is allowed to cost 9d. per acre. The clover stands one summer, and is then ploughed under, and the land in like manner is drilled with wheat eight pecks, producing upon an average, twenty-four bushels per acre. The wheat stubbles are haulmed immediately after harvest, and then sown with rye or tares for spring food; the same course repeated, and which in the form of a Dr. and Cr. account will nearly stand thus per acre:

First

	Dr.	Cr.
First year, ploughing the wheat stubbles, sowing and harrowing in the tares or rye	o 6 0	
Cleaning and ploughing the tare or rye ground for potatoes	o 5 6	
Filling, carting, and spreading the dung	o 7 6	
Cutting, dibbing, and dropping the potatoe sets	o 8 0	
Hoeing and moulding up the plants	o 4 6	
Digging, gathering, and housing the potatoes	2 0 0	
Cleaning, ploughing, and sowing the potatoe land with hotspur peas	o 6 0	
Cleaning, ploughing, horsehoeing and sow- ing the pea land with turnips	o 7 6	
First cost and expence of applying the top-dressing	1 2 6	
Hoeing the turnips	o 5 0	
Ploughing and preparing for oats or barley	o 5 0	
Drilling ditto	o 0 9	
Ditto the clover	o 0 9	
Filling, carting, and spreading dung upon the young clover	o 7 6	
Weeding the oats or barley	o 1 0	
Harvesting ditto	o 5 6	
Ploughing the clover ley for wheat	o 5 0	
Drilling ditto	o 0 9	
Hoeing and weeding ditto	o 1 6	
Harvesting ditto	o 5 6	
Haulming the stubble of ditto	o 2 0	
Thrashing five quarters of barley at 2s. per quarter	o 10 0	
Ditto of three quarters of wheat at 3s. 3d: per quarter	o 9 9	
Seed of wheat, two bushels	o 11 0	
Seed of barley, three ditto	o 9 0	
Ditto of turnips	o 1 0	
Ditto of peas, four bushels, at 4s. per bushel	o 16 0	
Ditto of tares or rye, two bushels and a half, at 5s.	o 12 6	
Ditto of clover, 10 lbs. at 4d. per lb.	o 3 4	
Ditto of potatoes, 300 lbs.	o 6 0	
Five years rent at 12s. per acre	3 0 0	
Poor's and other parish rates at 4s. in the pound	o 12 0	
Tythes, great and small, at 5s. in the pound	o 15 0	
Total expenses	15 12 4	
Profit in five years per acre to cover the interest of the capital employed	23 10 2	
	<u>£ 39 2 6</u>	<u>£ 39 2 6</u>

As the article of potatoes constitutes a very principal part of the profit in the above statement, and as that crop is charged to the credit of the account, at the lowest possible average quantity and price, it may not be improper in this place, further to show, how the potatoes are appropriated, and to what extent they prove beneficial to the farmer.

Fifteen thousand one hundred and twenty pounds is stated to be the lowest average produce per acre. In the present instance, this produce undergoes a preparation with steam, which, including the washing, will cost 2d. per 100 lbs. To every 300 lbs. of potatoes thus washed and steamed, is added half a pint of salt, and occasionally a small portion of sulphur; and this quantity will be more than sufficient to support a horse that shall be kept constantly at work for six days: 9000 lbs. will consequently be required for the maintenance, and for the preserving in good condition, a constant working horse 180 days, or about one half of the year; and this may be stated at three-fifths of the usual produce of an acre.

Horses fed in this manner, will perform with the greatest facility and ease, all the common labour of the farm, without hay or oats. The expence therefore, in wintering a team of five horses, in the usual way, when compared with this management, will stand as follows:

*Horses*

*Horses fed with Potatoes.*

Three acres of potatoes producing 45,000 lbs will support 5 horses 26 weeks, charging the potatoes at $\frac{1}{4}$ d. per lb. they are equal to - - - - -	46 17 6
Washing and steaming ditto at 2d. per 100 lbs. - - - - -	3 15 0
Three bushels of salt at 6s. per bushel - - -	0 18 0
Sulphur - - - - -	0 2 6
	<u>51 13 0</u>
Leaving a balance of	<u>12 17 0</u>
	<u>£.64 10 0</u>

*Horses fed with Hay and Oats.*

Five horses, 26 weeks, requiring 2 bushels of oats a horse per week, in all 260 bushels, at 2s. 6d. per bushel - - -	33 10 0
Five horses, 26 weeks, requiring 24 lbs. of hay each horse per night, equals 10 loads and one-third of a load, which at 3l. per load is - - -	31 0 0
	<u>£.64 10 0</u>

In favour of wintering a team of five horses upon potatoes, steamed, and thus prepared, rather than upon hay and oats.

This management of the potatoes has answered equally well for feeding or fattening bullocks when mixed with about twice its bulk of cut straw and hay.

From Aveley, through WENNINGTON, RAINHAM, DAGENHAM to HORNCHURCH, a light sand and gravelly loam, upon a gravel, affording a large portion of excellent grass, very good turnip and corn land. To the south, and bordering upon the River Thames, an extensive level of embanked marshes, well-watered, and producing a luxuriantly rich, and most valuable herbage. Extending thence northerly towards RUMFORD, South Weald, and Upminster, a wet heavy soil of a thin staple upon a close cold clay.

Upon

Upon the more gentle soils, adjacent to the village of Hornchurch, the drill and potatoe husbandry is conducted to great advantage: the practice however, in some measure, varies from that of Aveley, by sometimes sowing turnips immediately after tares or rye, and succeeding the potatoes with a crop of wheat in the place of peas. The potatoes also, which are designed for feeding cattle, are planted upon three-foot ridges, and managed in the same manner as at Finchingfield. Upon the lowest computation, the potatoe crops average here, 20,000 lbs. to the acre.

Rapeseed is transplanted at twelve inches square upon the potatoe land, costs a guinea per acre, generally stands for a crop, and is always found to answer extremely well. This practice is strongly recommended where wheat straw is in much demand, as the straw of the rape seed, affords an excellent substitute for littering the straw yards, the cow sheds, and the stall fed cattle.

The general light land husbandry of this district, is to fallow and dung for turnips, which are once hoed at 5s. 6d. per acre, and followed with barley upon once ploughing, fourteen pecks to the acre, with which is usually sown about twelve pounds of red clover, mixed with half a bushel of clean ray grafs. This is dunged in the autumn or winter whilst young, or upon the ley after two years, and previous to the ground being sown with peas, which are gathered green for the London market. The pea etches are well cleaned, and sown with wheat (and occasionally with rye for a crop;) the stubbles of either, are ploughed immediately after harvest, and the land sown with rye or tares for spring food, which is generally fed off by the middle of May, and in very good time to prepare in course for turnips.

The common husbandry of the heavier lands is to summer fallow for wheat, oats or barley, and with either, or with

with all of these crops, sow sixteen pounds of clover to the acre; dung the young clover, and sow wheat after one summer upon the leys of that clover, which succeeded the spring corn. Where clover is sown in the spring of [the year upon the wheat, it lies one summer, and the ensuing winter the clover ley is dunged, once ploughed, and drilled with beans, kept well hoed, and succeeded with wheat; the etches of which, are either winter fallowed for spring corn, or the wheat stubble haulmed, the land winter fallowed, and sown with coleseed by the first of June: this is fed completely off by Christmas, and the land again is put into excellent condition for beans or other spring corn, by the middle of February. When the coleseed stands for a crop, it is succeeded with wheat, unless the ground should be extremely foul, and very much exhausted, in which case, beans are made to succeed the coleseed, as an intermediate crop, and preparation for wheat: by this change of crops and the frequent opportunities which offer through this district in procuring top dressings of portable manure, the produce upon an average, according to the index table, is

23 bushels	of Wheat
34 ditto	of Barley
34 ditto	3 pecks of Oats
20 ditto	of Peas
24 ditto	of Beans

Which table further shews, that the average rent of the arable land through the district is 14s. 9d. per acre. That the pasture land of the first quality is 30s. and that of the second quality 15s. 2d. per acre. That the marsh lands (chiefly bordering upon the River Thames) are 32s. 9d. and that where the highland grass and arable land are let together, and without distinction of price, they average 15s. 6d. per acre. That the undergrowth of the woodlands is cut down every twelve

twelve years, and produces at the slob 3l. per acre. That there are 2520 acres of highly improvable waste land, which by inclosure, may be augmented in its annual value 17s. 1d. per acre. That the composition at present paid for the great and small tythes is 3s. 5d. per acre. And lastly, that the poor's rates upon the present rack rents are 3s. and that the same has increased, within ten years, 1s. in the pound.

The value of labour, servants wages, and price of provisions through this district, are found to be as follows:

Beef 4½d. per lb.—mutton 5d. per lb.—veal 5½d. per lb.—fresh pork 6d. per lb.—pickled pork 9d. per lb.—butter 11d. and cheese 6d. per lb.—household flour 2s. per peck, and potatoes 1s. 10d. per bushel. Stated daily labour 10s. per week through the year. Thrashing wheat 3s. 3d.—barley 2s.—oats 1s. 4d.—peas 2s. 4d. and beans 1s. 4d. per quarter. Head man's wages 12l. per annum, with board and lodging. Boys 6l. per annum with the same. Women servants wages 5l. per annum, with board, washing and lodging. Girls with the same, 2l. per annum.

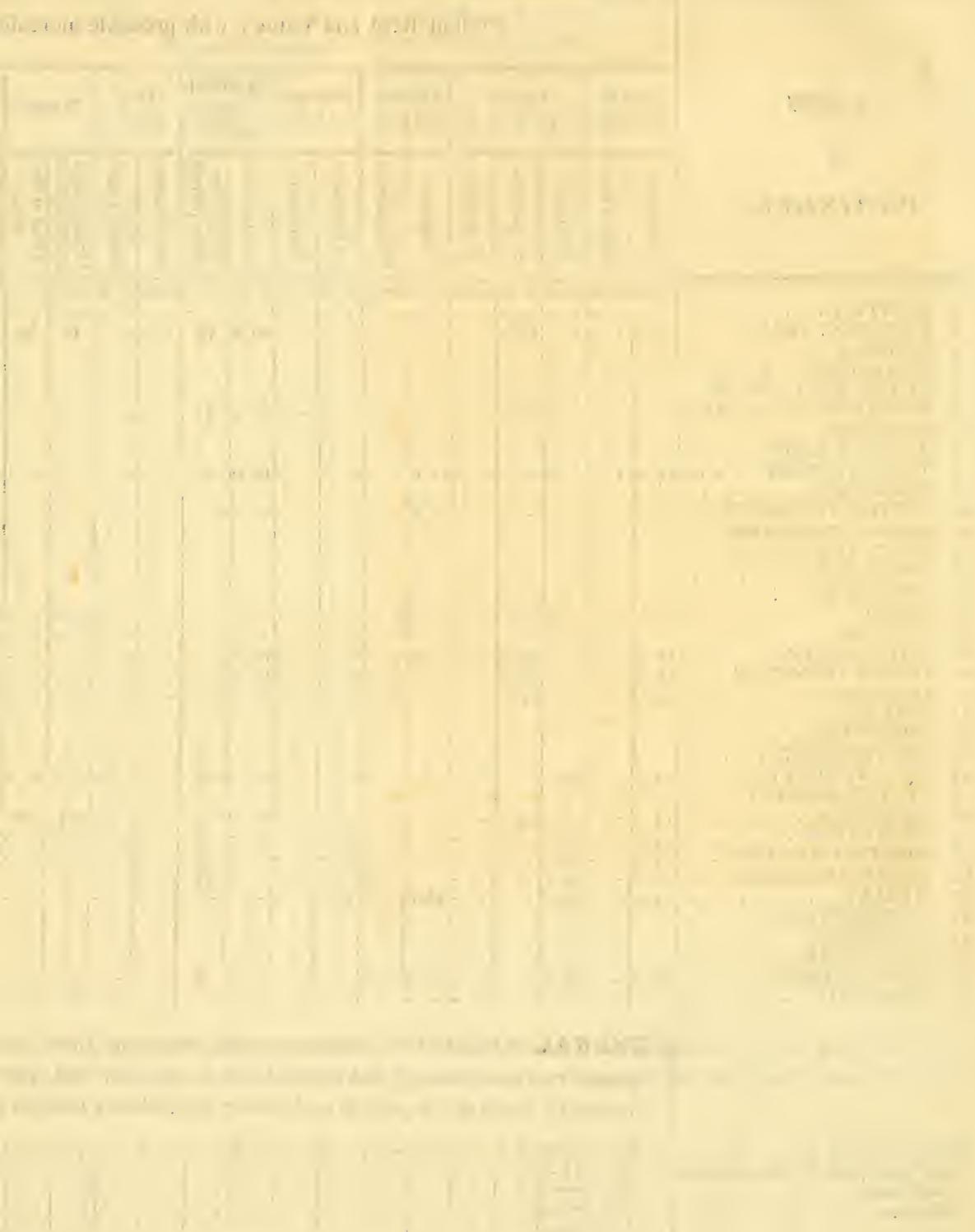
## DISTRICT

## DISTRICT THE ELEVENTH---Temperate mixed soil.

NAMES of PARISHES.	Present Rent and Value; with probable increase thereon.												Annual Produce per acre in bushels of												Tythes great & small		Poor's Rates.	
	Arable per acre.		Pasture per acre.		Marshes per acre.		Meadows per acre.		Ar. & Grafs taken together.		Hop Land.		Woods.		Forests.		Commons.		Composition per acre.		Composition per £. Rent		Increase in 20 years.		Poor's Rates in £.			
	Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Improved.	Unimproved.	In feavery.	Half-yearly.	Rent per acre.	Proportion under plough.	No. of acres.	s. d.	years.	s. d.	acres.	No. of acres.	s. d.	bush.	bush.	bush.	bush.	s. d.	s. d.	s. d.	s. d.		
1 DUNTON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2 LANGDON HILLS	16 0	-	-	16 0	-	-	-	-	16 0	2 1 2	-	-	-	-	-	-	20	7 6	21 0	-	-	28	20	20	3 3	-	-	3 0
3 FOBBING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	
4 CORINHAM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5 STANFORD LA HOPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6 HORNDON ON THE HILL	16 0	-	-	16 0	-	-	-	-	16 0	2 1 2	-	-	-	-	-	-	-	24	-	-	32	-	-	-	-	-	2 9	
7 MUCKING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	-	-	2 9	
8 TILBURY EAST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
9 WEST TILBURY	14 0	-	-	-	-	-	-	-	18 0	3 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	-	-	2 9	
10 CHADWELL	14 0	-	-	-	-	-	-	-	20 0	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	-	-	2 9	
11 LITTLE THURROCK	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
12 GREYS THURROCK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
13 WEST THURROCK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
14 PURFLEET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
15 STIFFORD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
16 ORSET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
17 BULVAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
18 CHELDERTON	16 0	-	-	16 0	-	-	-	-	16 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
19 GREAT HORNDON	15 0	-	-	15 0	-	-	-	-	15 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
20 INGRAVE	15 0	-	-	14 0	-	-	-	-	14 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
21 HUTTON	14 0	-	-	14 0	-	-	-	-	14 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
22 SHENFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
23 SOUTHWEALD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
24 GREAT WORLEY	12 0	-	-	20 0	-	-	-	-	12 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
25 LITTLE WORLEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
26 CRANHAM	14 0	-	-	14 0	-	-	-	-	14 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
27 UPMINSTER	14 0	-	-	28 0	-	-	-	-	14 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
28 NORTH OKENDEN	18 0	-	-	20 0	-	-	-	-	18 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
29 SOUTH OKENDEN	18 0	-	-	20 0	-	-	-	-	18 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
30 AVELEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
31 WENNINGTON	12 0	-	-	20 0	-	-	-	-	36 0	2 1 2	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
32 RAINHAM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
33 DAGENHAM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
34 HORNCURCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	
35 RUMFORD	18 0	-	30 0	-	-	60 0	-	-	-	-	-	-	-	-	-	-	-	20	-	-	30	30	-	24	4 6	-	1 3	

**GENERAL AVERAGE** deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed land, the woods, and the grass land; and annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

# THE PORTFOLIO



## DISTRICT THE TWELFTH.

*Heavy mixed soil, upon a gravelly loam, a tile earth,  
and a blue and white chalky clay.*

BEGINNING at TOPERSFIELD, where the soil in general is formed of a strong heavy loam, with little or no admixture of gravel; and where the rivet or bearded wheat is most generally cultivated, and found best to answer. A similar soil continues westerly to STAMBOURN; here the land has been very much improved by hollow draining, and here also are some very flourishing ash copse, which have been very judiciously planted for the purpose of hop poles. From Stambourn westerly to STEEPLE BUMPSTED, the soil varies from a gravelly to a thin cold loam upon a chalky clay.

This neighbourhood was very famous formerly for the manufacturing of cheese, but of late years the dairy business has generally given place to the suckling of calves for the London market, and for which purpose, a preference is decidedly given to the North Wales Cows.

South-westerly from Steeple Bumpsted to HEMPTED, and thence south-easterly to GREAT SAMPFORD, the soil in general consists of a wet heavy clay, upon a brown and a close chalky clay.

Even the highest parts of these lands require a constant and unremitting attention to hollow draining, which, at a pole apart, and made thirty inches deep, including materials, will cost about 35s. per acre.

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In

In the parish of RADWINTER, and adjoining the village, the soil consists of a gravelly loam; but thence northerly towards Ashden, and southerly towards Wimbish, a thin cold soil upon a blue and white chalky clay, intermixed with veins of a strong red clay or tile earth.

An experiment has lately been made by a very intelligent and liberal gentleman at Radwinter, in sowing his clover leys with wheat, in the following manner:

Through the greater part of this district the land is usually ploughed into four furrow ridges, as well for oats or barley, as for winter corn. The furrows between the ridges are left strongly marked upon the clover ley, and in the present instance, are sown or springed with wheat: two furrows are then nicely ploughed, covering the wheat, and thus forming the top of a new four furrow ridge. The open or last made furrows are then sown, and two furrows or slices are added to each ridge, leaving a small comb or balk, which is also sown and split down with a double breasted plough, casting an equal quantity of mould to the right and left, thus finishing the ploughing operation and shutting the ridges completely up. The field is then closely rolled down with a roller, which is swelled out in the middle, and properly constructed to operate equally upon the higher and lower parts of the four furrow ridges.

From this management the wheat is supposed to derive an immediate advantage from the manure which laid upon the surface of the clover ley; and although the crops have been very luxuriant, and that the soil is of a loose and hollow nature, the wheat has hitherto been exempt from the blight, nor is it but in a very slight degree liable to lodge or subject to be root fallen. It may be proper further to observe, that the ploughing should be performed in the most

most masterly manner, of a uniform depth, and as fleet as possible, so as to plough the land perfectly clean.

The greater part of the adjoining parish of WIMBISH, is found to consist of a wet heavy soil, upon a red tough, and a blitic chalky clay.

The lower parts of the fields here are uniformly found to possess a more tractable soil than that of the upper parts; and here a material improvement, though at a considerable expence, is made by mixing the opposite soils of each field together, thus mutually correcting their natural defects by rleeving the red loamy land from its tendency to bake and crust after heavy rains, or fresh ploughing, at the same time by rendering the staple of the looser soils more compact, the straw becomes shortened; the quality of the grain and pulse is very much improved, and the quantity is invariably increased per acre.

The most approved mode of hollow draining in this parish is to fill the drains with straw only, bushing the ends of the drains and the leaders to the outfalls: the smaller drains are made twenty-six inches, the leaders thirty inches deep, which together, and at a rod apart, will cost about two guineas per acre.

Horse-hoes or skims, of various dimensions, and equally applicable to ridge, or flat work, are found to answer particularly well for cleaning the fallows; which being generally ploughed in three feet ridges, the seed of wheat, beans, barley, and oats, is frequently put in by hand-barrows or drilling machines, sowing every other furrow or otherwise at pleasure, and colting per acre.

An ingenious farmer in this parish has constructed, and fixed to the tail of his plough a drilling box, which moves in a direct line after the plough, and is acted upon by the wheel which supports it to discharge the seed, and this is

done with great regularity into the last made furrow, not in a close narrow row (which by the bye is a very material defect in most drill machines) but scattered evenly in the bottom of the furrow and with as much safety as it is possible or necessary. This box by a kick with the foot, which stops the discharge of the seed, may be applied to close or alternate drilling, or to any width of interval whatever. The whole contrivance is particularly light and simple, not easily to be put out of trim, and does much credit to the ingenuity of the inventor.

The soil of Debden, WIDDINGTON and CHICKNEY, is of a nature very similar to the last described, and the same continues with little variation through CHAWRETH or BROXTED to TILTEY, where a well stapled strong loam, upon a blue and white chalky clay, forms a soil that is very prolific in corn, but unfavourable to permanent pasture and to the culture of artificial grasses.

LITTLE EASTON, TAKELEY, LITTLE and GREAT CANFIELD, present but little difference of soil or substrata from that described in the preceding parishes; and which indeed continues westerly of the Roding River, and with little variation through the hamlet of Morrel Roding, and the parishes of AYTHORPE RODING, WHITE RODING, ABBOTS RODING, RODING BEAUCHAMP, MATCHING, LITTLE LAVER, HIGH LAVER and MAGDALEN LAVER to NORTH WEALD; where the land is found chiefly to consist of a wet heavy soil, upon a chalky and a red tough clay.

The most judicious way of laying these lands dry, and improving them at the same time with their natural manure, is to open the partition ditches of the undrained and unimproved fields, eight feet wide, and from four to five feet deep, applying the chalky clay which is dug out of them to the

the red loamy soil, and the red tough clay to the lighter coloured grey soil, in the proportion of about 4000 bushels to the acre.

The outer drain being thus formed to give the best possible fall to the water, hollow drains are laid off through the field, at a rod apart from each other, and generally executed at the following expence per acre :

Opening the hollow drains by ploughing four furrows upon each, at 3d. per score rods, every expence included	- - - - -	0 0 3
Digging one spit with the broad spade eight inches, and one spit with the land ditch spade, 14 inches, allowing two inches extra depths for the drains leading to the outfal, at 3s. per score	- -	0 3 0
Value of the straw and expence of twisting it into a rope, in which form it is put into the drains, 1s. 9d. per score	- - - - -	0 1 9
		<hr/> 0 5 0

Eight score of these drains to the acre, materials included, will cost 40s. an expence that is generally and necessarily incurred upon most of the heavier lands in this neighbourhood. The expence of claying the land in the manner above recited, is difficult to ascertain, as the whole is incurred (be it what it may) on a double account, including that of draining.

From North Weald, westerly through MORETON, BOBBINGWORTH and SHELLY; and to the East of the Roding River, through FIFIELD, WILLINGALE SPAIN, WILLINGALE DOE, BERNERS RODING, GOOD EASTER, MARGARET RODING, LEADING RODING, HIGH EASTER, HIGH RODING, PLESHY, MASHBURY, LITTLE CHICKNAL, BROOMFIELD, GREAT CHICKNAL,  
and

ROXWELL, SHALLOW BOWELLS, and NORTON MANDEVILLE; the soil and substratum will admit of one general description, agreeing principally with that of Chawreth or Broxted. A greater intermixture of soil of a more temperate nature, and better suited to the culture of the annual and perpetual grasses is found to prevail through the parishes of BLACKMOOR and FRIERNING, and may generally be referred to the temperament of the sixth district, and containing a larger proportion of grass land than what is usually found through this district; the most universal husbandry of which is, to fallow the wheat stubbles for barley, and the barley stubbles for wheat. Upon about one-twentieth part of the barley land clover is sown, 16 lbs. to the acre; lies one summer and is succeeded with wheat upon once ploughing. The small portion of manure afforded through this district is very industriously collected and applied upon the fallows for wheat or barley, and sometimes (though but rarely) for beans. The result, according to the index table is

23 bushels 1 peck of Wheat
32 bushels 1 ditto of Barley
35 bushels of Oats
17 bushels 2 ditto of Peas
22 bushels 2 ditto of Beans per acre

The average table also shews that the arable land through this district is 13s. 4d. per acre. That the pasture of the first quality are 20s. of the second quality 13s. 9d. and of the most inferior quality 7s. 2d. per acre. That where the ploughed and grass lands are let together, and without distinction of price, the farms average 13s. 10d. per acre. That the undergrowth of the woods is cut once in fourteen years, and that it sells at the stub for 9l. per acre. That there are 300 acres of improveable waste or common, which by inclosure, may be augmented in its annual value 15s. per acre. That the composition at this time paid for the great and small



DISTRICT THE TWELFTH---Heavy mixed soil.

NAMES of PARISHES.	Present Rent and Value; with probable increase thereon.												Annual Produce per acre in bushels of						Tythes great & small				Poor's Rates.	
	Enclosed.		Arable per acre.	Pasture per acre.	Meadows per acre.	Ar. & Grafts taken together.	Hop Land.	Forests.		Commons.		Wheat.		Rye.	Barley.	Oats.	Tares.	Beans.	Compostion per acre.	Increase in 10 years.		Poor's Rates in £.		
	Open Field.	in d.	in d.	in d.	in d.	in d.	in d.	Rent per acre.	Proprietary land (though not in the parish).	No. of acres.	Rent per acre.	Value at the Rents.	in d.	in d.	in d.	in d.	in d.	in d.	in d.	in d.	in d.	in d.	in d.	
TOPPESFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
STAMFORD	13 0	-	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	32	-	16	24
STEEPLE BUMSTEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HEMPSTEAD	14 0	-	20 0	15 0	10 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREAT SAMFORD	14 0	-	20 0	12 0	8 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RADWINTER	14 0	-	10 0	12 0	6 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WIMBISH	11 0	-	10 0	10 0	6 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WIDDINGTON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHICKNEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROX FED or CHAWRETH	13 0	-	10 0	10 0	6 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FILTEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LITTLE EASTON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TAKELEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEIGHTON BUNFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREAT CANFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AYTHORP RODING	13 0	-	-	11 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE RODING	11 0	-	-	11 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ABBOTS RODING	14 0	-	-	14 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RODING BEAUCHAMP	14 0	-	-	14 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATCHING	14 0	-	-	14 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LITTLE LAVER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HIGH LAVER	14 0	-	-	11 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAGDALEN LAVER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTH WEALD	15 0	-	20 0	15 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WESTON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BOBBINGWORTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHELLEY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FIFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WILLINGALE SPAIN	13 0	-	20 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WILLINGALE DOE	13 0	-	20 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERNERS RODING	12 0	-	-	12 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOOD EASTER	15 0	-	-	15 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MARGARET RODING	12 0	-	-	20 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEADEN RODING	13 6	-	-	13 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HIGH EASTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HIGH RODING	13 0	-	-	13 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PLESHY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STOUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LITTLE CHIGNAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREAT CHIGNAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROXWELL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SEHOLLOW BOWELS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTON MANDEVILLE	14 6	-	-	14 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACKMOOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRIERNING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

GENERAL AVERAGE deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grafts land; and annual rent and value of each of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

General Average	13 4	-	20 0	13 0	7 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Open field, partially improved and waste land	-	-	13 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Difference	-	-	6 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

To the average of wheat may be added 5 bushells per acre where the rye or bearded wheat is cultivated.

small tythes is 3s. 1d. and that the same has increased 1s. 3d. per acre within twenty years. And lastly, that the poor's rates upon the present rack rents are 4s. and that they have increased 1s. 1 $\frac{1}{4}$ d. in the pound within ten years.

The quantity of feed usually sown per acre, may be referred to districts No. 5, 7, and 10; and such other particulars as relate to the value of labour and price of provisions, may be very well understood by reference to district No. 1, and the next following.

## DISTRICT

## DISTRICT THE THIRTEENTH.

*Being a temperate and heavy mixed soil, upon a chalk, a gravel, a burrock (i. e. a gravel and chalk mixed) a tile earth, and a blue and white chalky clay.*

**B**EGINNING at SAFFRON WALDEN, where the land east of the town, and extending towards ASHDON, Radwinter and Wimbish, consists of a wet heavy soil upon a chalky clay. Southerly towards Wenden and Debden, the soil is of a more open and gentle nature, and lies upon a chalky and a brown tender clay, interspersed with some veins of gravel. Thence westerly to LITTLE BURY and LITTLE CHESTERFORD, a thin dry soil upon a chalk and gravel, which continues northerly to GREAT CHESTERFORD; but thence north-easterly through Little Walden to HADSTOCK, the thin hurrocky soil is lost in a strong heavy clay upon a tile earth, and in a gravelly loam.

The low pastures and meadows in this neighbourhood being subject to frequent overflowings from the river Cam, are reduced to a very inferior condition, which is only to be improved by some regulation requiring that river to be properly cleansed out, and its bed deepened. The water might then be run down to a lower level, and the adjacent lands, by being relieved of their superabundant water, would in a short time become extremely valuable.

The long drift and scanty pasturage in this open part of the county occasions a decided preference to the North and South

South Wales cows; but in the event of a general enclosure, (which is much wished for) this deficiency would be immediately supplied by the culture of artificial grasses; and the laying down of several well adapted spots into permanent pasture.

The surface of the country through WENDEN LOFTS, STRETHALL, ELMDON, and CHISHALL, is much intermixed, as well in the open fields, as in the enclosures: consisting in part, of a thin dry soil upon a chalk, a hurrock, and a harsh burning gravel; together with a deep friable mould upon a flinty or gravelly loam, and a tough wet thin clay upon a tile earth. The open field lands in the parishes of HEYDON, GREAT and LITTLE CHISHALL, are chiefly formed of a thin hurrocky soil upon a chalk and gravel. The soil of the enclosures is found to improve from a wet heavy clay to a deep tender loam upon a brick earth. In the parish of LANGLEY the soil becomes more uniform, and will justly answer to one general description, which is that of a strong wet loam upon a tough clay or tile earth.

From the nature of such a soil, very close hollow draining has been rendered indispensably necessary. The drains are laid off at two and a half and three yards apart from each other, are made twenty-six inches deep, and filled with wood and straw, and at an expence of from 50s. to 3l. per acre.

The want of proper materials for repairing these roads occasion them to be almost impassable in winter. Stones or gravel are with difficulty obtained, and no where within the most convenient distance for less than one penny per bushel; an expence, which to a certain degree, would be rendered less necessary, were the sides of the lanes, and the road greens lowered, and a freer passage afforded to the discharge of the water, by opening the drains into the outfall ditches.

O

From

From Langley eastward towards ARKSDEN and WENDEN, the country is broken into hills, and contains much of the same variety of soil as was noticed upon the confines of Cambridgeshire.

Through the parishes of NEWPORT, WICKHAM BONHUNT, RICKLING, QUENDON, UGLEY, HENHAM ON THE HILL, ELSENHAM, STANSTED MONTFITCHET, and BIRCHINGER, the soil is a good deal intermixed, and consists of a loamy and a harsh gravel, and a mild grey loam of a good staple upon a chalky clay, below which, are veins of strong red clay or tile earth.

The lands of FARNHAM, MANUDEN, BERDEN, and CLAVERING, are found to consist of an hazel coloured gravelly loam upon a gravel, a thin close heavy soil upon a blue and white clay, and a thin dry hurrocky soil upon a chalk.

The rough and unimproved pastures in this neighbourhood, seem in a great measure to owe their present inferiority to the very wet and compressed state in which they have been lying for ages. Upon such as have been hollow drained and kept open with the plough for a few years, and then laid down into pasture, improvements have been made that are truly astonishing! The general opinion upon this question among the most attentive and intelligent farmers is this; that the pasture lands upon the wet cold tile earth bottoms, ought to be kept under the plough for about three years in twenty.

A light tender loam, upon a vein of gravel, is found to stretch southerly from Hatfield Heath through High Laver to Morton and Bobbingworth, affording an excellent supply of materials for repairing the roads in those parishes through which it extends.

HATFIELD

HATFIELD BROAD-OAK or Takely Forest, is about one half covered with wood, amongst which, with a great deal of other very valuable timber, is an oak, that measures at five feet from the ground, fourteen feet in circumference, and is thought will cut to timber, at the height of ninety feet from the ground: one of its branches, near the top, and on its north west side, is a little staggered, but in every other respect the tree indicates sound health and increasing substance.

The clear rich lands of Woodside Green, and every other part of the forest, which is not usefully employed in the growth of timber, might be materially improved, by enclosure for cultivation, or for the purpose of encouraging the growth of oak and other valuable timber.

Proceeding southerly from Hatfield, Broad Oak, through GREAT and LITTLE HALLINGBURY to SHEERING, the soil in general becomes of a more temperate and tractable nature, affording in many places some very good turnip land.

Very little is to be noticed in this district on the article of manure, if we except only the light top dressings, which are used at an expence of from 30s. to 40s. per acre in the open field country, bordering upon Hertford and Cambridgeshire. In those parts of the district, two crops and a fallow is the only routine of cropping that can generally be admitted; and in the enclosed country, the husbandry may be referred to the variety of modes practiced in, and particularized at the end of the first district; which, agreeably to the prefixed index table, yields an average produce of

20 bushels	3 pecks of Wheat
26 bushels	3 pecks of Barley
24 bushels	1 peck of Oats
18 bushels	of Peas and
20 bushels	of Beans per acre.

Which table further shews, that the average rent of the enclosed arable land is 12s. 5d. that of the open field

O 2 6s.

6s. 8d. a difference therefore of 5s. 9d. per acre between that which is held in severalty and that which is half-yearly or Lammas ground. That the pastures of the first quality are 20s. 7d. those of the second 12s. a consequent difference of 8s. 7d. per acre between those which are properly and those that are only partially improved. That the grass and arable land, when let together, and without distinction of price, averages 12s. and that the rough and inferior pastures only average 6s. 7d. a difference there of 5s. 5d. per acre, supposing those lands to be improved to the level of the farms which are thus disposed of, but which in point of value and improvement are generally observed to be inferior to those estates that are rented under a just discrimination of the quality and value of their different classes of land. That the undergrowth of the wood land is cut once in eleven years, and produces 8l. 15s. per acre at the stub. That there are 500 acres of forest land in the district, appropriated to the growth of oak and other valuable timber. That there are 1070 acres of waste common land, which may by inclosure be improved in its annual value 12s. 5d. per acre. That the composition at present paid for the great and small tythes is 3s. 4d. and that the same has risen 11d. per acre within twenty years; and lastly, that the poor's rates upon the present rack rents are 4s. 3d. and that they have risen 1s. in the pound within the last ten years.

The value of labour, and price of provisions, through this district may be stated as follows :

Beef 4½d.—Mutton 4½d.—Veal 5d.—Pork 5½d.—Pickled Pork 7½d.—Butter 1od. and cheese 6d. per lb.—Flour 1s. 11d. per peck—and potatoes 1s. 3d. per bushel.—Stated daily labour in the winter 7s. and summer 9s. per week.—Thrashing wheat 2s. 6d.—barley 1s. 4d.—oats 1s. 2d.—peas 2s. 2d.—and beans 1s. 2d. per quarter.—Head man's wages 8l. with board and lodging.—Boy's 40s. per ann. with the same—Women's wages 3l. 10s. with board, washing and lodging—Girls 1l. 10s. per ann. with the same.

DISTRICT

DISTRICT THE THIRTEENTH---Temperate mixed soil.

NAMES  
of  
PARISHES.

Names of Parishes.	Present Rent and Value; with probable increase thereon.												Annual Produce per acre in bushels of						Tythes great & small		Poor's Rates.										
	Arable per acre.		Pasture per acre.		Marshes per acre.		Meadows per acre.		Ar. & Grafts taken together.		Hop Land.		Woods.		Forests.		Commons.		Composition per acre.		Composition per £. Rent		Increase in 20 years.	Poor's Rates in £.	Increase in 10 years.						
	Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Improved.	Unimproved.	In severalty.	Half-yearly.	Rent per acre.	Proportion under plough.	No. of acres.	1s. d. per acre.	Undergrowth at what age cut	Value at the full.	No. of acres.	Present value.	Improved value.	No. of acres.	Present value.	Improved value.	Wheat.	Rye.	Barley.	Oats.	Pea.	Beans.	Composition per acre.	Composition per £. Rent	Increase in 20 years.	Poor's Rates in £.
1 SAFFRON WALDEN . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2 ASHDON . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3 LITTLE BURY . . . . .	16 0	7 6 25 0	-	-	-	-	-	-	-	-	-	12 0	-	-	-	10 180	-	-	20 4 6 22 0	-	-	-	-	-	-	-	-	-	5 6		
4 LITTLE CHESTERFORD . . . . .	15 0	8 0 20 0	13 0	-	-	-	-	-	-	-	-	15 0	-	-	-	10 176	-	-	200 4 6 20 0	18	-	22	22	16	-	-	-	-	-		
5 GREAT CHESTERFORD . . . . .	15 0	8 0 20 0	13 0	-	-	-	-	-	-	-	-	15 0	-	-	-	10 176	-	-	18	-	22	22	16	-	-	-	-	-			
6 HADSTOCK . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
7 STRETHALL . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
8 ELMDON . . . . .	14 0	6 0 20 0	-	-	-	-	-	-	-	-	-	-	-	-	-	10 180	-	-	26	-	28	32	-	-	2 9	-	-	2 6			
9 CHRISHALL . . . . .	11 0	6 6 20 0	10 0	-	-	-	-	-	-	-	-	-	-	-	-	10 180	-	-	18	-	24	22	16	-	-	2 0	-	1 0			
10 HEYDON . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125 5 0 15 0	-	-	-	-	-	-	-	-	-	-	-	-			
11 GREAT CHISHALL . . . . .	9 0	4 6 20 0	-	-	5 0	-	-	-	-	-	-	-	-	-	-	10 180	-	-	16	-	22	22	-	-	-	-	-	-			
12 LITTLE CHISHALL . . . . .	9 0	4 6 20 0	-	-	5 0	-	-	-	-	-	-	-	-	-	-	10 180	-	-	16	-	22	22	-	-	-	-	-	-			
13 LANGLEY . . . . .	12 0	7 6 20 0	-	-	7 0	-	-	-	-	-	-	12 0	-	-	-	16 240	-	-	22	-	26	18	16	20	3 9	-	1 0	4 6			
14 ARKSDEN . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
15 WENDEN . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
16 NEWPORT . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
17 WICKHAM BON-HUNT . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
18 RICKLING . . . . .	12 0	-	20 0	-	8 0	-	-	-	-	-	-	12 0	-	-	-	11 160	-	-	-	-	24	-	32	32	-	-	3 6	-	-		
19 QUENDON . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
20 UGLEY . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
21 HENHAM ON THE HILL . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
22 ELSENHAM . . . . .	13 0	-	21 0	-	7 0	-	-	-	-	-	-	9 180	-	-	-	-	-	-	26	-	32	32	24	24	-	-	-	4 6			
23 STANSTED MONT-FITCHET . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
24 BIRCHANGER . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10 120	-	-	-	-	26	-	40	28	20	20	3 9	-	0 10		
25 FARNSHAM . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	24	20	16	16	3 9	-	5 0		
26 MANUDEN . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
27 BERDEN . . . . .	12 0	-	21 0	-	7 0	-	-	-	-	-	-	-	-	-	-	10 120	-	-	-	-	26	-	40	28	20	20	3 9	-	0 10		
28 CLAVERING . . . . .	11 0	7 6 20 0	-	-	4 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	24	20	16	16	3 9	-	5 0		
29 HATFIELD BROAD-OAK . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
30 GREAT HALLINGBURY . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
31 LITTLE HALLINGBURY . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
32 SHIERING . . . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

GENERAL AVERAGE deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed, the woods, and the grafts land; and the annual rent and value of such of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be conveyed) touching the present and former agricultural interests of this district.

General Average . . . . .  
Open field, partially improved and  
waste land  
Difference . . . . .

12 5	6 8 20 7	12 0	6 7	-	-	14 0	-	12 0	-	-	11	175	500	-	-	1070	4 7 17 20 3	-	26 3 24 1	18	20	3 4	-	0 11	4 3	1 0
6 8	-	12 0	-	-	-	6 7	-	-	-	-	-	-	-	-	-	-	4 7	-	-	-	-	-	-	-	-	-
5 9	-	8 2	-	-	-	5 5	-	-	-	-	-	-	-	-	-	1070	-	12 5	-	-	-	-	-	-	-	1 0

To the average of wheat may be added  
buftels per acre where the rive or beard  
wheat is cultivated.



## DISTRICT THE FOURTEENTH.

*Temperate mixed soil, upon a gravelly loam, a yellow woodland clay, a brick, and a tile earth, and a chalky clay.*

**B**EGINNING at HARLOW, where the land consists of an intermixture of soils, from a wet heavy tough clay upon a tile earth, to a light tender thin soil upon a gravel; between these extremes, there are various shades of temperament and fertility, the most esteemed of which is that of a deep hazel coloured loam, upon a brown tender clay intermixed with gravel. The tile earth in this neighbourhood is occasionally used in the manufacturing of coarse earthen pots.

Southerly through LATTON, NETTSWELL, LITTLE and GREAT PARNDON, ROYDON, NASING and to EPPING, a similar character of soil, in which there is a large proportion of excellent pasture ground.

A very choice breed of cows has lately been brought from Devonshire into this neighbourhood by Mr. Conyers; they seem to possess almost every requisite to form the most perfect of the cow kind. Their excellencies are almost universal, being extremely hardy, and requiring but little food, at the same time are well adapted to the draft, the dairy, to grazing and to suckling; and so far as the trial has yet been made of them, they promise to answer most particularly well.

The

The country through WALTHAM ABBEY, SEWARDSTOND, CHINGFORD, WOODFORD, WALTHAMSTOW, and LEYTON; bounded by Epping Forest on the east, and the meadows which lie along the River Lea upon the west, consists of a great variety of soil, the leading feature of which is that of a gravelly loam upon a brick and a tile earth, and upon some yellow clay.

The adjacent Forests of Epping and Henhault, are viewed as an intolerable nuisance, and are equally regarded as such, at CHIGWELL and at LOUGHTON, where the farmers uniformly declare, that the privilege of commonage is by no means equal to the one tenth part of the losses they constantly sustain from the deer in breaking down their fences, trespassing upon their fields, and destroying their crops either ripe or green. Against these predators it is further alledged, that there are no fences, however laboriously contrived, expensive, and formidable against other animals, that will in any wise avail: add to this, that the evil is continually increasing from the annual increase in the stock of deer.

These forests, so near the metropolis, are well known to be the nursery and resort of the most idle and profligate of men: here the under graduates in iniquity commence their career with deer stealing, and here the more finished and hardened robber secretes himself from justice, or retires for a time with his plunder from his haunts in London, where his arrest is certain whenever it is determined by the master robber, or the robber catcher, that the active and actual robber is to be *done*.

The country on the north west side of the Roding River, and comprehended within the parishes of THEYDON BOIS,

**BOIS, THEYDON-MONT, THEYDON GERNON, STAPLEFORD TANEY, STAMFORD RIVERS, GREENSTED, CHEPING ONGAR, and HIGH ONGAR,** consists of a variously compounded and mixed soil, chiefly of a good staple, of a tractable nature, and lying upon a gravelly loam, a brown and a white chalky clay.

As a large proportion of this country is laid into grass or pasture ground, the dairy, with some suckling business, is most generally pursued; but for either of these purposes there does not appear to be that necessary choice or general preference to any particular breed of cows, which it should seem that the soil, the herbage, and the peculiar appropriation of the milk, most essentially requires.

The lands on both sides of, and hanging towards the Roding River, consist of a deep rich gravelly loam, well adapted to the culture of clover, forming excellent pasture and very good corn land. Proceeding south-easterly from the Roding River, and extending thence through the parishes of **STONDON, KELVEDON HATCH, DODDINGHURST, NAVESTOCK, STAPLEFORD ABBOT, LAMBOURN, and HAVERING BOWER,** the rich mellow soil is in a great measure lost in a strong loam, upon a chalky, and a wet tough clay.

By hollow draining a considerable improvement has been made in these lands, a large proportion of which, are under grass, and usually depastured by dairy cows.

The soil of the land in the neighbourhood of **BARKING, including the parishes of GREAT ILLFORD, Wansted, LITTLE ILLFORD, EAST and WEST HAM,** lies chiefly upon a brown tender clay and a gravel.  
These

These lands being situate so very near to the metropolis, and so completely within the reach of the London muck, no conclusion applicable to the general improvemt of the country is to be drawn from their husbandry or other management; particularly as a very large portion of this part of the county is occupied with gentlemens country residences, and otherwise employed under pasture, meadow, nursery, and garden ground.

The mode of cropping through this district, is extremely various and irregular: it may be said to include all those changes enumerated in the practice of the preceding districts, to which may also be added, that of sowing clover in the spring of the year amongst the wheat, at the same time and in the usual quantities as with spring corn: the reason assigned for this practice is, that in a dry season the clover is very apt to overpower the oats or barley, and on the other hand, when to prevent that evil, the clover is sown late in the season, it frequently misses plant, and the clover crop which is here of particular importance, is lost for that season. Finally, the reasonable objection of two successive crops of wheat, with only one intermediate crop, and that of clover, is not esteemed of sufficient consideration to recommend the constant practice of sowing, and always cultivating that inestimable graft with spring corn.

By reference to the prefixed table, it will appear, that the average annual rent of the enclosed arable land is 18s. 4d. That of the open common field 15s. leaving a difference of 3s. 11d. per acre between the half yearly, arable and that which is held in feveralty. That the pasture land averages 27s. 3d. per acre. That the meadow land in feveralty upon the Roding River equals 29s. at the same time that the half yearly or Lammes land, much of which is of a superior quality, and abutting upon the River Lea is only rented at 25s. a consequent

quent difference of 4s. per acre, against the annual rent or value of the superior land. That number of acres of forest land, producing nothing but old pollard, oak, and hornbeam at this time, yielding on a very fair statement 5s. 8d $\frac{1}{2}$ . per acre, but were it enclosed for cultivation it might be readily disposed of at 20s. an improvement may therefore be made in the annual value of that body of land, be its extent what it may, of 14s. 3 $\frac{1}{2}$ d. per acre. That there are 2203 of commons, which by enclosure, may be improved 18s. 2d. per acre. That the average produce of the crops of wheat are twenty-eight bushels, of barley thirty-six bushels, of oats forty bushels, and of beans forty bushels per acre. That the present commutation for the great and small tythes is 3s. 4 $\frac{1}{2}$ d. and that the same has increased 11 $\frac{1}{2}$ d. per acre within twenty years: and lastly, that the poor's rates, upon the present rack rents, are 3s. 9d. and that they have increased 1s. 6d. in the pound within the last ten years.

The average value of labour, servants wages, and price of provisions, is found through this district, to be as follows:

Beef 4 $\frac{3}{4}$ d. per lb.—mutton 5 $\frac{1}{4}$ d. per lb.—veal 5 $\frac{3}{4}$ d. per lb.—fresh pork 6d. per lb.—pickled pork 8 $\frac{1}{2}$ d. per lb.—butter 11d. and cheese 6d. per lb.—household flour 2s. 1d. per peck, and potatoes 1s. 8d. per bushel. Stated daily labour 10s. per week in summer, in winter 1s. 6d. per day. Thrashing wheat 2s. 11d.—barley 2s.—oats 1s. 5d.—peas 2s. 4d. and beans 1s. 4d. per quarter. For mown wheat 3s. 6d. per quarter, and 1s. per load for trussing the straw. When wheat is thrashed by the truss, the usual price is 2d. when beans, oats, or barley 1 $\frac{1}{2}$ d. per truss. Servants wages from men of ten guineas to boys of 4l. with board and lodging. Women servants from four guineas to 2l. per annum, board, washing and lodging included.

From the foregoing detail of such circumstances, as upon enquiry, where found to exist in the several parishes where information was obtained, the following more general and enlarged table is formed, embracing in one view, and exemplifying in the shortest manner, the average amount or value of all the material intelligence, collected upon the survey, as appertaining to agriculture, and to the means which the county at present possesses, for extending its cultivation and enlarging the scale of its improvement.

## TABLE

*Table of the Sum, and of the General Average Amount of certain facts contained in the preceding Journal.*

of the general average amount - - - - - 14 8 | 10 2 | 23 2 | 14 0 | 6 10 | 15 7 | 4600 | 22 10 | 25 8 | 14 6 | - - - - - 31 0 | 13 0 | 11 6 | 10370 | 5 6 | 18 0 | 14237 | 5 4 | 16 8 | 24 2 | 20 0 | 33 3 | 36 2 | 20 1 | 27 0 | 34 0 | 29 0 | 335 | 3 5 | - - - - - 1 1 | 3 6 | 1 1 | 4 | 5 | 5 | 5 | 7 | 10 | 16 | 24 | 18 | 9 5 | 8 | 10 | 30 | 19 | 14 | 27 | 14 | 9 12 | 2 | 2 | 17 | 10 | 4 | 4 8 | 2 | 5 |

B. About 500 acres of Hatfield or Takeley Forest, is at this time under a very valuable growth of oak timber. The proportions of Epping and Henham Forests, that are equally well employed, could not even be guessed at, without a more particular examination than it was possible to bestow upon this important part of the survey.

( 114 )

From the foregoing detail of such circumstances, as upon

The substance of which table, it may here be proper to recapitulate, and is as follows, viz.

That the average rent of the enclosed arable land through the county is 14s. 8d. That of the open field 10s. 2d. consequently a difference of 4s. 6d. per acre between the common field land, and that which is held in severalty. That the average rent of the prime pasture ground is 23s. 2d. making a difference of 9s. 1 $\frac{1}{4}$ d. per acre between the pasture land of the first, and that of the second quality. That the rough and unimproved pastures are rented on an average through the county at 6s. 1od. per acre. That the embanked marsh ground averages 15s. 7 $\frac{1}{4}$ d. per acre; and that there are 4,600 acres of salt marsh, which at this time, may be conveniently enclosed from the sea, and gradually improved to an equal value. That the meadows in severalty average 22s. 1od. and those that are half-yearly 25s. 8d. leaving a difference of 2s. 1od. per acre, which is by no means proportioned to the superior quality of the latter land. That the arable and grass land through the county, when let in farms together, and without distinction of price, equals 14s. 6 $\frac{1}{2}$ d. per acre. That      acres of hop land average 31s. per acre. That the undergrowth of the woodlands, cut once in thirteen years, averages through the county at the stub 5l. 11s. 6 $\frac{1}{4}$ d. per acre. That there are 370 acres of thicks or forest land, which, by enclosure, may be improved 12s 6d. per acre. That there are, say, 10,000 acres of the same description of land, not producing, or being favourable to the growth of oak or other valuable timber, in the forests of Epping and Henhault, at present estimated to produce 5s. 8 $\frac{1}{4}$ d. per acre, but which, in a state of enclosure for cultivation, might be readily augmented to 20s. per acre: and finally, that there are 14,237 acres of waste common land, which being enclosed, would immediately be increased

in its annual value 11s. 4 $\frac{1}{4}$ d. The same table exhibits the following general average produce through the county, viz.

Wheat	24 bushels	2 pecks
Rye	20 bushels	
Barley	33 bushels	3 pecks
Oats	36 bushels	2 pecks
Peas	20 bushels	1 peck
Beans	27 bushels	
Mustard	24 bushels	
Coleseed	29 bushels	
Potatoes	335 bushels	
Coriander and Caraway seed	10 cwt.	per acre.

It also shews that the composition at present paid for the great and small tythes is 3s. 5 $\frac{1}{2}$ d. and that the same has increased through the county 1s. 1 $\frac{1}{2}$ d. per acre within twenty years. That the poor's rates upon the present rack rents are 3s. 6 $\frac{1}{2}$ d. and that they have increased through the county 1s. 1 $\frac{1}{2}$ d. in the pound within ten years.

That the price of provisions and value of labour through the county, are lastly, as follows :

Beef 4 $\frac{3}{4}$ d. per lb.—mutton 5d. per lb.—veal 5 $\frac{1}{2}$ d. per lb.—fresh pork 5 $\frac{3}{4}$ d. per lb.—pickled pork 7 $\frac{3}{4}$ d. per lb.—butter 10 $\frac{1}{4}$ d. and cheese 6d. per lb.—household flour 2s. the peck, and potatoes 1s. 6 $\frac{1}{4}$ d. per bushel. Stated daily labour 9s. 5d. in the summer, 8s. 10d. per week in the winter. Task work, or value of labour in thrashing wheat 30 $\frac{3}{4}$ d.—barley 19 $\frac{3}{4}$ d.—oats 14 $\frac{3}{4}$ d.—peas 27 $\frac{1}{4}$ d. and beans 14 $\frac{3}{4}$ d. per quarter.—House servants : head man's wages 9l. 12s. 2d. Boys 4l. 4s. 8d. per annum. Womens wages 4l. 4s. 8d. Girls 2l. 5s. per annum.

PART

# DISTRICT THE FOURTEENTH--Temperate mixed soil.

NAMES of PARISHES.	Prefent Rent and Value; with probable increase thereon.												Annual Produce per acre in bushels of						Tythes great & small		Poor's Rates.									
	Arable per acre.		Pasture per acre.		Marshes per acre.		Meadows per acre.		Ar. & Grafs taken together.		Hop Land.		Woods.		Forests.		Commons.		Wheat.		Rye.		Barley.		Oats.		Peas.		Benns.	
	Enclosed.	Open Field.	1st quality.	2d quality.	3d quality.	Improved.	Unimproved.	In fearely.	Half-y ealy.	Rent per acre.	Pr.portion under plough.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.	No. of acres.			
1 HARLOW . . . . .	25 d	25 d	15 d	15 d	15 d	15 d	15 d	15 d	15 d	15 d	15 d	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
2 LATTON . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
3 NETTISWELL . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
4 LITTLE PARNDON . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
5 GREAT PARNDON . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
6 ROYDON . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
7 NASING . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
8 EPPING . . . . .	20 0	20 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	35 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0	30 0			
9 WALTHAM ABBEY . . . . .	25 0	25 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
10 SEWARDSTONE . . . . .	25 0	25 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	15 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
11 CHINGFORD . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
12 WOODFORD . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
13 WALTHAMSTOW . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
14 LEYTON . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
15 CHIGWELL . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
16 LOUGHTON . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0		
17 THEYDON BOIS . . . . .	18 0	18 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
18 THEYDON MONT . . . . .	18 0	18 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
19 THEYDON GERON . . . . .	18 0	18 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
20 STAPLEFORD TANVEY . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
21 STAMFORD RIVERS . . . . .	16 0	16 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
22 GREENSTED . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
23 CHEPING ONGAR . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
24 HIGG ONGAR . . . . .	16 0	16 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	21 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
25 STONDON . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
26 KELVEDON HATCH . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
27 DODDINGHURST . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
28 NAVESTOCK . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
29 STAPLEFORD ABBOT . . . . .	20 0	20 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	
30 LAMBOURN . . . . .	20 0	20 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	36 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	
31 HAVERING BOWER . . . . .	15 0	15 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
32 BARKING . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
33 GREAT ILFORD . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
34 WANSTEAD . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
35 LITTLE ILFORD . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
36 EAST HAM . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	
37 WEST HAM . . . . .	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	20 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	

GENERAL AVERAGE deduced from the foregoing Table, shewing the produce of the arable, and difference of value between the ploughed bed, the woods, and the grafts land; and annual rent and value of each of the latter as are improved, partially improved, or waste: together with such material information (as it was possible to obtain, and to be thus conveyed) touching the present and former agricultural interests of this district.

General Average . . . . .	18 11	15 0	27 3	-	-	-	-	-	-	-	-	5 8 1	20 0	22 0 3	5 4 2	3 6	28	-	36	40	-	40	3 4 1	-	11 1	3 9	1 6	
Open field, partially improved and waste land	15 0	-	-	-	-	-	-	-	-	-	-	5 8 1	-	-	5 4 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Difference . . . . .	3 11	-	-	-</																								

# INTRODUCTION

This volume contains the results of a study of the effects of the use of the new technique of the *in vitro* culture of plant cells on the growth and development of plants. The study was conducted by the Department of Botany and Plant Pathology of the University of California at Berkeley, under the direction of Dr. C. L. Hildebrandt. The work was supported by grants from the National Science Foundation and the U.S. Office of Technology Assessment.

The study involved the use of a variety of plant species, including *Arabidopsis thaliana*, *Brassica napus*, *Cucurbita pepo*, *Glycine max*, *Lathyrus sativus*, *Malus domestica*, *Medicago sativa*, *Phaseolus vulgaris*, *Pisum sativum*, *Ricinus communis*, *Solanum tuberosum*, *Triticum aestivum*, and *Zea mays*. The results of the study indicate that the use of the *in vitro* culture technique has a significant impact on the growth and development of these plants. The results also suggest that the use of this technique may be a useful tool for the study of plant biology and for the development of new agricultural technologies.

The study was conducted over a period of several years, and the results are presented in a series of papers. The first paper, "Introduction," provides an overview of the study and its objectives. The second paper, "Methods and Materials," describes the methods used in the study. The third paper, "Results," presents the results of the study. The fourth paper, "Discussion," discusses the implications of the results. The fifth paper, "Conclusion," summarizes the findings of the study.

The results of the study show that the use of the *in vitro* culture technique has a significant impact on the growth and development of plants. The results also suggest that the use of this technique may be a useful tool for the study of plant biology and for the development of new agricultural technologies.

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## PART II.

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### CHAPTER THE FIRST.

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#### Stock.

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##### SECTION I.

###### *COWS.*

THE great variety of soil in this county, and the consequent difference of herbage in a very small space, has doubtless contributed very largely to that intermixture of breeds among the sheep and cow cattle, with which the primeval of the grass lands through the county are generally depastured: but though this observation applies to the county at large, it does not extend locally, and through those particular districts, where the herbage, from time immemorial to the present period, has neither degenerated or improved, and where, without question, the pastures employed for particular purposes, would favour the breed of one species of stock, rather than that of another.

That these matters have hitherto been too much disregarded is plain, for in the richest and most luxuriant pastures, are too frequently found, an assemblage of the refuse stock, and cullings of the adjacent, the northern, and western counties of the kingdom.

The

The stock of cow cattle in most parts of the kingdom (if we except the breeding counties) is chiefly appropriated to two purposes, viz. the dairy, and for grazing; in this county, a third may be added, that of suckling, or feeding calves for the London market. The rank which these different modes of appropriation holds in the estimation of the Essex farmer is, first, the dairy; second, suckling, and third, grazing.

With regard to the first, so much depends upon the unwearyed exertions of the mistress, both early and late, that unless the farmer's wife is able and willing to encounter such fatigue, little profit can accrue to the farmer therefrom.

In the country about Epping and Ongar, this business is carried on extensively, but where in general there seems to be no particular choice or preference as to breed, or the stock of cows best suited to the purpose. The Norfolk, Suffolk, Derby, Lincoln, Leicester, Craven, Holderness, North and South Wales, and Galloway breeds, are indiscriminately mixed together, and constitute the principal dairies throughout that neighbourhood.

In a few instances a preference was observed to be given to the Holderness, Leicester, and Derby, the milk of which cows (as well as that of the other dairies) after standing twenty-four hours, is fleeted; and the skimmed milk is drawn off from the leads, into vessels (not lined with lead but) of an increased depth; this is called doubling: here it remains for twelve or twenty-four hours, during which time, as the cream rises, it is fleeted two or three times. It is then threbled or put into tubs, or still deeper vessels, where it is occasionally skimmed and kept so long as any appearance of cream or richer milk is found to form upon the surface. The butter which is made from the after-fleetings of the milk,  
is

is of a paler colour, and of an inferior quality to that made from the cream, which rises the first twenty-four hours: it is generally churned apart, and sold at a lower price.

The skimmed milk is usually applied to the purposes of feeding porkers, or small pigs, for the London market; these are always kept very clean, and warmly lodged, particularly in winter, during which season, as well as in the summer months, the milk is always sour before it reaches the troughs, but on that account there does not appear to lie the least possible objection; as the pigs are always found to thrive extremely well, and their fat, from repeated trials of comparison, is firmer, and vastly superior to that of hogs fattened upon peas or meal.

To account for this, however paradoxical it may at first appear, and certainly against the more generally received opinion, is by no means difficult; nor will it seem at all extraordinary or strange, when it is considered, that the milk with which the pigs are fed, contains all the rich gluten, or that component part which would constitute cheese; and no one (it is presumed) will deny, the nutritive qualities of that important article, in the list of those necessaries, which compose one of the principal in the support of human life.

About two acres of the prime pastures are usually allowed for the consumption of a milch cow, which at 23s. per acre (agreeably to the general average table) is 46s. to this, tythes may be added 3s. 6d. per acre; and poor's and other parish rates 4s. in the pound. A loss of 50s. is generally sustained upon the sale of the old cows, and an allowance of ten per cent. upon the years produce, ought in reason to be made for risk, accidents of slipping calf, cow doctor, &c. &c. The account will then stand upon a dairy of twenty cows as follows:

*The*

<i>The Dairy</i>	<i>Dr.</i>	<i>Per contra it is Cr.</i>
The interest upon the cost of 20 cows, at 10l. each, 200l. at 5l. per cent. per ann.	10 0 0	By 6lbs. of butter a week per cow for 26 weeks 156
To ditto upon the first cost of a bull 10l. at 5 per cent.	0 10 0	By 4lb. ditto, for 14 ditto - - 56
To 40 acres of pasture land at 23l. per acre	46 0 0	<u>212</u>
Tythe upon ditto 3s. 6d. per acre	7 0 0	which applied to 20 cows, equals 4240 lbs. 11d. per lb. 194 6 8
Poors and other parish rates at 4s. in the pound rent	9 4 0	By the net profit upon 8 pigs per month, for 6 months, 48 pigs, at 14s. each 33 12 0
Annual reduction in the value of the cows from the time they are purchased till sold out or dried to be fattened, say 7 years, at 7s. 6d. per cow	7 10 0	By ditto upon 4 pigs per month, for 4 months, 16 pigs, at 14s. each - - 11 4 0
Dairy maid's wages	5 0 0	By 20 calves at 25s. each - - 25 0 0
Labour incidental to the business of the dairy, including hay-making, foddering, and all other attendance	25 0 0	
Fuel	15 0 0	
Interest accruing upon the first cost and wear and tear of the dairy utensils	4 10 0	
Allowance of 10 per cent. upon the amount of the year's produce for accidents, loss of calves, cow-doctor, &c.	26 8 0	
	<u>156 2 0</u>	
Balance in favour of the dairy - -	<u>{ 108 0 8 }</u>	
	<u>£. 264 2 8</u>	<u>£. 264 2 8</u>

which leaves a clear profit of about 5l. 8s.  $\frac{1}{2}$ d. upon each cow.

This much however is to be observed, that the calculation stands upon a supposition, and according to the generality of cows throughout the neighbourhood; that the dairy in question is of the most uniform and prime quality, and that it is also under the most skilful and attentive management.

Where almost every breed of cows in the kingdom compose the dairy, and where a less attention is paid to the feeding and management of them, the farmers are extremely unwilling to allow that the average produce of their cows in butter exceeds 4lbs. per week during the forty weeks they are in milk, or 160lbs. per annum for each cow. To this diminution of profit in the article of butter, from the smaller quantity of milk, is further to be added a loss that is necessarily sustained in the feeding of a less number of pigs, and which upon the whole will be found to reduce the net profit to about 3l. per cow; but even on this view of the subject, and which is surely considering it at the very lowest ebb, the dairy business will prove far more beneficial than that of the common mode of suckling, a truth clearly illustrated by the following example.

Q

*A suckling*

<i>A suckling herd of 20 cows</i>	<i>Dr.</i>	<i>Per contra they are</i>	<i>Cr.</i>
To annual interest accruing upon the first cost of 20 cows at 9l. per cow, 180l. at 5 per cent. - -	9 0 0	By the sale of 50 calves fattened by the 20 cows in the course of the year, and selling in Smithfield on an average at 3l. 15s. each - - -	187 10 0
To ditto on the first cost of a bull 9l. at 5 per cent. - -	0 9 0		
To 40 acres of pasture land at 20s. per acre	40 0 0		
Tythe upon ditto 3s. 6d. per acre - -	7 0 0		
To poor's and other parish rates, at 4s. in the pound rent -	8 0 0		
Annual reduction in the value of the cows from the time that they are bought till they are sold or dried for fattening, say 7 years, at 6s. per cow - -	6 0 0		
Thirty calves bought in at 25s. -	37 10 0		
Market charges upon 50 calves at 2s. 6d. per calf - - -	6 10 0		
Labour incidental to the herd, including haymaking, foddering, and all other necessary attendance per ann. - -	20 0 0		
To allowance of 10 per cent. upon 187l. 10s. the gross produce of the year for accidents, cow-doctor, &c. - -	18 15 0		
Balance in favour of the herd - -	153 4 0		
	34 6 0		
<u>£. 187 10 0</u>			<u>£. 187 10 0</u>

which is equal to a clear profit of about 1l. 14s. 3d. upon each cow.

This however, is by no means proportioned to what the profit would be, if the cows, used for this purpose, were of a proper and uniform breed.

In support of this assertion, it is particularly convenient in this place, to recur to the management of a gentleman in the neighbourhood of Epping, whose attention to this, and to every other branch of rural economics, is as highly deserving the emulation of, as it is truly beneficial to, the surrounding country.

In addition to other regulations and improvements, Mr. Conyers (as was noticed in the Journal) has lately introduced a breed of cows, from Devonshire, which seem to unite all the requisites for the dairy, the draft, for suckling, and for grazing. Their milk is confessedly richer, and in every respect superior to that of the Holderness, Leicester, or Derby; though from the size of the animal, it must necessarily follow, that the quantity must be less; and which, in comparison with the Holderness cow, is allowed to be, by one fourth part, though greatly superior in its quality. One acre and an half of the prime pasture lands in the county, is allowed to be equal to the full, and complete maintenance of one of these cows for a twelvemonth; in the course of which time, every two cows will fatten five calves. The first cost of these cows, expence of driving, and every thing included, is 7l. 10s. per head. The suckling account then, of a herd, consisting of twenty cows, will, upon the preceding principles, and the most clearly established data, stand thus:

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*A suckling*

<i>A suckling herd of 20 cows, of the De- vonshire breed,</i>	<i>Dr.</i>	<i>Per contra they are</i>	<i>Cr.</i>
To interest annually accruing upon the first cost of 20 cows at 7l. 10s. per cow, at 150l. at 5 per cent. - - -	7 10 0	By the sale of 50 calves fattened upon the milk of the 20 cows within the year and sold at Smithfield market at 3l. 18s. 6d. each, equals -	196 5 0
To ditto upon the first cost of a bull, 7l. 10s. at 5 per cent. - - -	0 7 6		
To 30 acres of prime pasture land, at 23s. per acre - - -	34 15 0		
Tythes upon ditto 3s. 6d. per acre - - -	5 5 0		
To poor's and other parish rates at 4s. in the pound rent	6 19 0		
To 30 calves bought in at 1l. 2s. 4d. each	33 10 0		
To labour incidental to the herd, includ- ing haymaking, fod- dering, and all other necessary attendance at 18l. per ann.	18 0 0		
To market charges up- on 50 calves at 2s. 6d. each - - -	6 10 0		
To allowance of 10 per cent. upon the gross produce of the year, 196l. 5s. - - -	19 12 6		
	132 9 0		
Balance in favour of the herd - - -	63 16 0		
	<u>£. 196 5 0</u>		<u>£. 196 5 0</u>

which

which is equal to about 3l. 3s. 9 $\frac{1}{2}$ d. net profit annually per cow; and although there is evidently a want of coincidence between this and the preceding account, in the price of the lean, and also of the fat calves, still that statement is expressly correct, being derived (with much other of the most material information) from the books of Mr. Conyers, Mr. Smith, of Sutton, the Reverend Mr. Abdy, and other Gentlemen, to whom much is due from the public, for their candid communications, and individually from myself, for their politeness and hospitality.

In this last statement, it may be objected, that no discount is allowed against the cows for their decreasing value. This is answered by long experience in their native country (and a very important fact it is) that when from age or accident, this breed is no longer proper for the purposes of milk, their hardiness and peculiar conformation enable them to retain for the purposes of grazing, all the condition and value of their first cost, as hazardable heifers.

A decided superiority therefore attaches upon this breed of cows, not only for the dairy and suckling but in their disposition, to keep in good order during the term of their milk, and in their great aptitude to feed, or to fatten afterwards: thus uniting at once, all those qualities, which are supposed to exist individually in other breeds, and thus in one species, concentrating all those excellencies so long and so earnestly sought for, in the most perfect of these animals: such, for a short instance, as the Wales cows doing much better with a less quantity and inferior quality of food, than the Derby or Leicester; their thin blue milk being more applicable to the purposes of suckling, than the richer milk of the Derby and Leicester; the advantages of the latter for grazing over the Wales breed in  
cafes

cases of accidental loss of milk, or when old and unfit for the dairy, with many other requisites and objections, partly founded in speculation, and partly founded in fact; all conspire to be admirably qualified in the native cow of a particular district in Devonshire.

In speaking thus pointedly of this breed of cows, it may not be improper, to state more particularly, and at large, the leading qualities, and characteristics of the animal.

It has before been observed that they are naturally hardy, and will preserve themselves in good condition, whilst giving milk, upon an inferior herbage: it may also be inferred from the first cost of the heifers, that this breed are not so heavy as to poach, to the injury of the wet pastures; nor on the other hand, are they so light and confined in their frame, as not to pay extremely well for grazing upon the richest lands. They are particularly quiet in pasture, docile, and patent of controul: in their own country the steers are very generally applied to the draught, being remarkably active, and four of them well trained in a plough, will do an acre of land in the same time that it would be ploughed with three horses. In both cases a driver is found necessary. During the summer season, the day's work should be divided (as is the practice in Devonshire) into two journeys of four and a half or five hours each, and the steers should be baited in the middle of the day upon green food, mown and carried to them, or with chopped hay in the stable. The steers should be broken to the yoke, and receive their first training at two years old: they should be worked very gently for a twelvemonth, after which time they will become so far feasoned, as to bear constant and regular work, which with due care, they may be put to, till they are six years old. At this age they are generally sold, or grazed by the farmer at home, weighing upon an average, when completely fat, about

about thirteen score per quarter ; and the cows, when fat, at seven years old, will weigh about eight score per quarter.

The most distinguishing features of this breed are, a fine white horn (not chalky) streaked with red : the eye, full, round, bright, lively, and clear ; the external circle of the pupil, tinged with a deep yellow ; around the eye is a gold coloured circle, which colour, in all cases, will be found to prevail on the inside skin of the ears ; the chop mealy ; the countenance cheerful, and equally free from any thing of a black cast, or the smallest spot of white ; the permanent colour of the breed, is a bright blood red ; the points on the back, and hind quarters, equal to the most highly finished of the improved Bakewell breed ; and the shoulder less weighty, but with more roundness and beauty than is generally to be seen : flat clear head, and jaw free from gum, and throat free from dewlap.

An attention to all these matters are indispensable in the purchase or breeding of these animals, particularly in the choice of, or in the perfections of the bull.

The accidents and diseases, to which all cows are liable, are so well known, that it may not be necessary to state any thing further than a few suggestions, applying to those cases which are but too frequent, and fatally experienced in this county. Bleeding when the cows are from one-third to half gone with calf, is earnestly recommended as a preventive against premature calving, and when the accident does happen, to bury the abortion immediately, and to keep the cow as widely apart as possible from the herd. To be particularly careful that she does not receive the bull, which herds with the other cows, at least not till after such a lapse of time, as with good reason she may be thought completely recovered, and free from the possibility of communicating the smallest infection.

infection. For the disease called the red-water, bleeding, and change of food in many parts of the county, particularly in the islands, and upon the embanked marshes, have been found effectually to answer. When the teat cracks, and the bag becomes indurated and inflamed, it is often the consequence of high feeding, and these are the uniform indications of approaching garget in the dug; in this case the cow should be immediately blooded, her bag should be well washed, and anointed with hogs lard or sweet oil. The teats should be dressed with goose greese, and the cow kept as cool and quiet as possible. In a few days the bag will become soft, the inflammation subside, and the milk gradually return to its usual purity and colour.

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## SECTION II.

### SHEEP.

**A**S there are but few breeding flocks in this county, the usual mode of stocking with sheep, is to buy ewes in the months of August or September, to entice those that have not already taken the ram, to be so disposed as early as possible, that the lamb may be returned fat in the spring, and the ewe fattened and sold off before the end of summer.

For this purpose, the sheep generally preferred, may be divided into two classes; the Dorset, which begin lambing about the beginning of October, and whose lambs are usually returned fat by the Easter following; cost about 25s. each,

each, and are calculated to pay very well if they return 3l. per couple (lamb wool and fat ewe included) by harvest. The other class is a medley of Norfolk, Welsh, Hartford, Wiltshire, the lambs of which, are falling from the middle of December till the beginning of February, and sometimes till Candlemas. These generally cost from 15s. to a guinea a piece, and are also allowed to pay very well, taking lamb and wool equally into the account, if they turn over (*i. e.* double their first cost) in time for the land to receive its new stock of sheep in the autumn. The reasons generally assigned for preferring any of these latter class individually, are, that the Welsh are good nurses, and feed excellent lambs. That the Hartford and Wiltshire stand well out of the dirt, are hardy, and will do well upon a coarse and sour herbage; or that the Norfolk are good turnip sheep, always feeding quick, and paying well after the lamb is fattened.

The experiment stated in the Journal to have been made at Finchingsfield, upon a Norfolk and Southdown ewe, illustrates in some degree, the peculiar excellencies and defects of those breeds; and it is only to be regretted, that the trial was not made upon a larger scale, and in such a manner, as to ascertain with a still greater certainty the absolute intrinsic value and characteristic qualities of either animal; enough however is established from the experiment to prove, that barring the first cost of the Southdown ewe, it is unquestionably proved to be the better sheep. On the score of the first cost of these sheep an objection may be very justly stated as to their general use; but when the Southdown shall be more generally bred and increased through the country, in that proportion will the present objection be done away; and though they may continue in equal estimation, they will nevertheless by their being more generally

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diffused and increased through the country, be brought to a more equal level, in point of price with the Norfolk, Welsh, and all those breeds so justly held in requisition for the fineness of their wool, and the superior excellence in the flavour of their mutton.

The leading and characteristic qualities of the high, and full bred Norfolk and Southdown sheep, appear upon comparison to be nearly these: the wool of both is found to be of the first cloathing quality, but the larger quantity is produced from the Southdown. The mutton of both is equally delicious. But the quiet and gentle Southdown in pasture, must be opposed to the wild impatient ramblings of the Norfolk, whose constant exercise not only excites continual appetite, but at the same time occasions considerable waste in the pasture, by treading down and unnecessarily spoiling a great deal of what they do not eat. For this extraordinary exertion on the part of the Norfolk sheep, in thus (as it were) wantonly destroying a large portion of food that is prepared for its subsistence; there does not appear from the experiment abovenoticed, to be the smallest occasion, at least to put it on an equal footing with the Southdown in that particular; for it is evidently demonstrated by that experiment, that in an equally sized sheep, the heaviest, and most capacious stomach, and consequently requiring the greatest quantity of food, is found to appertain to the Norfolk sheep. The hardiness of the Southdown, enduring wet and cold lodging, and a greater degree of abstinence and fatigue than the Norfolk in the fold, is a superiority of much moment; and only to be equalled by another, which they possess in a very superior degree, which is that of doing well upon coarse four pastures. These are fairly to be contrasted with the delicate constitution, and the tender aromatic herbage,

required

required by the Norfolk; add to all which, the Southdown is an equally good turnip sheep, and for every possible purpose, whether for its flesh, for its wool, for breeding, for folding, or for the butcher, they demand a less supply of food, and of an inferior quality, to that which in every situation seems indispensable to the well-doing of the Norfolk.

The crosses which have been made between the Norfolk and Welsh sheep by the Southdown ram, are by some farmers esteemed highly advantageous; by others they are despised as mongrel, destitute of all the excellencies, but retaining most of the defects, which individually appertained to the stock from which they were produced. This contrariety of opinion, and that amongst gentlemen equally respectable for their veracity and judgment, embarrasses and obscures the question so much, that nothing short of a regular series of experiments, accurately attended to, and conducted upon an extended scale, can ever elucidate the truth, and prove the necessity of a preference either on one side or the other.

From the excellent state of the highland drainage through this county, there are but few spots in it which are liable to communicate the rot to sheep. In the progress of the tour, but one instance deserving notice occurred, and that was in the neighbourhood of East Horndon, upon the commons called Bulvan, and Orset Fen. These commons it is to be remarked are particularly subject to inundation winter or summer; but the disease is observed to be more prevalent and fatal after light and partial overflowings in the summer, than after the more frequent and extended inundations at other seasons. The other diseases and accidents to which

this valuable animal is liable, are not so seriously experienced in this county as in many other parts of the kingdom. The foot rot, and scab, which produce considerable inconveniences in other places, are but slightly felt even among sheep produced from the stock of the Lincoln and Leicester breeds, and which are found most generally to depasture in the islands and upon the marshes, which have been embanked from the sea.

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### SECTION III.

#### *HORSES.*

**A** Description of the particular breeds of horses, chosen and required in this county for the purposes of agriculture, does not seem to apply so materially to the purpose of this enquiry, as the expence attending their maintenance, the general mode of feeding, and the working management of them.

The practice of cultivating green food, and soiling the horses in the yard or stable, during the summer season, is now become very general through the county; and the daily accumulation of dung by this means, together with the superior health and hardiness which is induced in the plough horses, by their lodging in the straw yard, rather than in the stable, through the winter, is a sufficient inducement with

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the most able and experienced farmers to continue both practices, and to justify their general recommendation of them throughout the kingdom.

The allowance of oats during the winter season, and whilst the horses are fed upon what is called dry meat, is two bushels a horse per week. In the summer, and when soiled upon green food, about half that quantity. The road teams are necessarily fed at a greater expence than the plough horses, as well in the article of hay, as in that of corn; the allowance of the latter, to both increasing, as the work presses, or in proportion as their exertions may require.

In this view, the expence of feeding the farm horses through this county, is really enormous, and can only be lessened by the introduction of some equally nourishing substitute, lying equally within the farmer's reach, to be procured as readily, and at a less expence. The journal most clearly displays that substitute in potatoes, and to Mr. Tabraham, of Avely, upon that subject are the public much indebted, for his very important and candid communication.

To reduce the consumption of the present costly horse food, by the general adoption of Mr. Tabraham's practice, where under a similarity of circumstances, the soil would equally well allow of the culture of potatoes, must prove of the highest public, as well as private importance, as thereby a still more valuable appropriation would be given to a large proportion of the surface territory of the kingdom, now employed in the culture of horse food: thus contributing in a very great degree to the augmentation of our internal resources, and thereby superceding the necessity of importing

importing into this country, that immense quantity of oats, hitherto annually supplied from the northern parts of Europe.

Upon the light and temperate lands, two horses in the wheel or common foot plough are usually employed, and these are managed with much dexterity by one person, who holds the plough, and drives the horses to a very equal labour at the same time. Upon the stronger land, three and sometimes four horses are required to a plough; these as necessarily require a driver, and here in like manner with the two-horse plough teams is the day's work at plough, and at harrow, done in one journey of seven and a half or eight hours. To plough an acre, or at most five roods, is the common day's work. This is the general mode of working the farm horses, but which (under the peculiar circumstances of this county) is not to be applauded or approved of by any means. In open countries, where the work lies detached, and often at the distance of two, or even three miles from the farm house, the rounding of the day's work into one journey, particularly in the winter season, seems to be a practice indispensably necessary: but in a country like Essex, where the farms lie compact, yet moderately large; and where the farm-houses in general are tolerable centrical, and conveniently situated; it cannot surely admit of an excuse for the ploughmen in the middle of their journey, to halt to breakfast upon the headland (perhaps at the back of the stable, or contiguous to the farm yard) the horses all the while shivering with cold, getting stiff and diseased from neglect, and the consequences attendant upon their morning's labour, whilst the ploughmen are idly consuming the time, which custom has sanctioned to complete their day's work in one journey. By dividing the labour of the day, and baiting between two journeys of four and a half hours,

or five hours each, a greater time would be allowed for the performance of more labour, which in this manner, would be done with far greater ease, to both men and horses, and particularly with much less exhaustion and injury to the latter.

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## SECTION IV.

### *SWINE.*

THERE is no animal in the whole economy of good husbandry that requires more attention as to breed, number, and supply of food, or will better require the care and trouble of the farmer, than a well-managed and proper stock of hogs. These things however are too much overlooked, or rather disregarded by farmers in general, though all are ready to agree that an over-stock in other respects must ever prove fatal to the interests of the farmer. Hogs are too frequently conceived to be a trifling and unimportant part of the stock of a farm; whereas if their first cost, and the value of their food, were duly considered, with their improving value, it would certainly bear them out against some of the more costly animals, and challenge more attention and care than what is usually bestowed upon them. A due regard to the breed which the peculiar circumstances of the farm may call for, is particularly necessary, as some breeds are much better suited to depasture, and feed upon grass and herbs only, than others. The most hardy and best qualified to prog  
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for themselves, are the Chinese ; a cross with which breed upon almost any other, may under most circumstances, be prudently recommended ; let the breed be what it may, a well proportioned stock to every farm will most abundantly requite the care, and repay the expence of the necessary food, provided for them. A few acres of clover would be well applied to the use of the hogs in the summer ; but in the ftye it would be well to restrain them to a certain quantity of water ; and to lodge them clean and dry, notwithstanding the wilful neglect and too prevailing opinion to the contrary ; for cleanliness and avidity are as essential to the preservation of their health and well doing, as to that of any other animal.

## CHAPTER

## CHAPTER THE SECOND.

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**Arable.**

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## SECTION I.

*IMPLEMENTES OF HUSBANDRY.*

IF we except the drilling apparatus, annexed to the common plough, at Wimbish, the cast iron draining wheel, noticed in the Journal, at Finchingfield, and the improved form of the breast plate (or what is generally termed the mould board, in most ploughs) we shall find that the instruments generally used in the husbandry of this county, afford but few examples of singular utility. The fore end or neb of the plate in the Norfolk, and most other ploughs, (the Rotherham excepted,) rises from the upper surface of the shear too perpendicularly, and too much at right angles to the line of friction, or pressure of earth the plate has constantly to act against; working thus abruptly in the ground, the slice or furrow is violently torn, or burst from off the land, broken and imperfectly turned over, instead of being gradually cut, raised whole, and whelmed over, as will always be the case, when the plough enters the ground obliquely, and at a proper angle, and that the plate or mould board is properly turned for raising up, and turning the slice completely over.

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In the operation of working wheel-ploughs with improperly turned plates or mould boards, it will frequently happen from the resistance produced against the plough by stones, the tenacity or compression of the earth, that they are obliged to be let down below the corresponding line of level, so materially necessary to the equal bearing between the pitch of the plough, and to the inclination which is thus given to the point of the shear downwards, and which ought always to be, or at least as nearly as possible to a line, drawn parallel to that of the draft, and with the breast work, which forms the fulcrum from the beam to rest upon. When a plough is so constructed, and set to work, that it bears unequally in these points, the end of the shear will be rooting or dragging with its point downwards, kicking up, and sideways at the heel, and rendering it utterly impossible to plough the ground clean, or in any wise to lay the work uniform, or even in a tolerable manner; notwithstanding an excessive and unnecessary degree of labour is thereby produced to the ploughman and horses. Where the wheel ploughs are properly constructed, they are without question easier to hold, and will cut the ground more evenly, and work at a more uniform depth than the foot-ploughs; at the same time, it must be confessed, that in any given soil, they will require a greater power to work them than the latter: the best constructed, of which and those with the completest and best graduated rack work at the end of the beam, are those commonly used in the Island of Mersea, in that neighbourhood and quarter of the county.

## SECTION II.

*HOLLOW-DRAINING.*

**T**HERE is no improvement to which the heavy land husbandry of this county owes so much as to the fortunate introduction, and continuance of the practice of hollow-draining. The means of melioration, and the consequent sources of fertility, thence derived from the soil, over and above what it formerly yielded, are not more important and valuable in the present day, than permanent and precious, as they must prove in their consequences hereafter. The few instances of invincible blindness to the beneficial effects of this excellent practice, go no further than to prove, that where the work is not properly executed, it never ceases to fail in producing the desired effect.

To complete an improvement of this nature, much is necessary to be attended to. If the field proposed to be drained lies greatly upon the descent, every care should be taken to make the drains bear sufficiently horizontally, in the first place to prevent a too precipitant fall of the water, by which the bottoms of the drains would be worn uneven, and a temporary obstruction occasion them to blow; and secondly, because the more perfectly horizontal is the field, so that it lies level free, and affords a sufficient fall for the water, the less occasion will there be for the same number of drains as would be required upon a soil of equal closeness upon the side of a hill: The drains in the field that lies nearly level, drawing equally well upon each side; whereas those on the hang of a hill, drawing only from the higher

sides of the drains, and consequently requiring them to be made much nearer or closer together.

The stratum also through which the drains are to be made, is a point deserving very particular attention ; for when it is such as forms a very close and retentive clay, the drains should be made proportionably near to each other, shallow, and filled with straw only ; it being totally unnecessary to use wood, or any more durable material upon land, where the sides of the drains are not likely to crumble in ; upon a soil like this, the drains should seldom exceed the distance of three or four yards apart, and twenty inches deep, or such a depth as may be the most conveniently obtained, by first opening the drains with the plough, shovelling the bottom of the lowest furrow, and then digging one spit only with the land ditch spade ; and which, materials included, will cost about 2s. 6d. per score rods.

Drains formed in this manner, through the tough and retentive clays, will be found in a short time after the work is finished, to have formed over the straw with which the drain was filled, an arch of sufficient strength to support the incumbent weight of the soil, and the casual traffic of the field. In 12 or 18 months it may be observed, that the straw being of one uniform substance, is all rotted and carried away, leaving a clear pipe through the land in every drain, into which the passage of the water may have been much facilitated, by a due attention to the filling of the drains with the most friable and porous parts of the surface the field might have afforded. From the price above stated to 2s. 6d. per rod (as noticed in the journal at Southminster) is the expence, at which this most important of all improvements to the wet heavy lands is conducted in this county.

## SECTION

## SECTION III.

*MANURE.*

THE first consideration which most naturally occurs to an active intelligent and improving farmer upon this subject, is that of preparing and fitting his soil for the reception of such animal, and vegetable matter, as in the course of his lease he may be able to collect for improving, and annually recruiting his exhausting lands: previously hollow-draining the wet heavy parts of his farm, and afterwards applying the alteratives of chalk, clay, marle, sand, or gravel, which (though at the highest expence stated in the journal) will not discourage him, seeing in consequence thereof the land becomes more tractable and fruitful, and which with proper management, he knows it will be found to retain for a great length of time.

The blue and white chalky clay, which is applied successfully, under such different circumstances through this county, should (in order to prepare it for an immediate and intimate union with the soil) be stubbed and left exposed to the action of the air, sometime before it is carried out, and spread upon the land.

In the application of sand, gravel, or any silicious mixture to the heavy wet lands, care should be taken to apply it in quantities sufficient to divide, and completely to overcome the natural adhesion of the soil; for if there is too small a quantity used, a directly opposite effect will follow, and the land (on the principle of mortar) will acquire a disposition to run and cement together; thus instead of the tough clayey

clayey soil being brought to a more gentle temperament, their natural tendency will be increased to run together, and to crust upon the surface after rain, and every fresh ploughing.

In applying clay, marl, or any apparently unctious or soapy matter, to soils containing a superabundance of sand or gravel, the same caution is by no means necessary, as under the most convenient and favourable opportunities of procuring those materials, there would be but little danger of such a quantity being carried upon the land, as would contribute, even in the smallest degree, towards producing a similar effect.

In every soil, be its nature what it may, occasional dressings of lime are indispensably necessary to act upon the undissolved animal and vegetable bodies, thereby producing fermentation and vapour, or giving to them that degree of solubility, without which (as was observed in the report of Cambridgeshire) it is impossible they can afford any direct nourishment to plants. The well-known property in caustic lime, which so rapidly dissolves the texture and organization of all bodies, whether animal or vegetable, should be an object of the most serious study and consideration, to the improving farmer, who ought to be well advised of the fact, and to have it ascertained with the utmost certainty, whether there is, or not, from the peculiar circumstances of his soil, a direct and positive demand for such a dressing. If on examination it should be found to contain a considerable portion of animal or vegetable matter (and which a very simple chemical analysis would readily determine) there can be no question but lime would be of service, and which upon all, and every occasion, should be applied by itself, unmixed with any other matter, immediately lightly covered, and in its freshest, hottest, and most caustic state.

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In this view, we are chiefly to regard its operation in the earth, and whether in its disorganizing process, it converts the whole, or a part only of the animal and vegetable substances with which it is in contact into the immediate pabulum or food of plants; and that the remainder, by subsequent union with other bodies, becomes locked up as it were in an insoluble state, but capable of being dissolved again, and converted into vegetable food, by the application of acids or alkali, is a question of too much importance to the agriculture of these kingdoms, to be carelessly overlooked by the chemical agriculturist; as thereby a supply of vegetable food may be discovered, which if satisfactorily explained, and placed in a point of view, so as to enable the occupiers of old, and apparently exhausted, chalked, and limed lands, to restore and bring into action that quantity of vegetable food, which may have lain dormant for ages in their respective farms, would be a discovery indeed! The person who by superior talents, and unwearied labour, shall be so fortunate to develop this mysterious suggestion to mankind, will assuredly rank higher in the estimation of man in general, and the inhabitants of these kingdoms in particular, than any of the most justly celebrated characters of ancient or modern times.

It has just been observed, that such a discovery would apply as well to the relief of the old chalked, as to that of the old limed lands. From the present mode of applying lime, by the time that it reaches the field, it becomes quite effete, and differs very little from its raw state, in that of chalk, saving that in its more completely perfect, and impalpable pulverization, its causticity is lost and expended in the dung heap, and the gas or vapour there generated and thrown off, and which in its proper situation, would have materially aided a growing crop, is improvidently lost, as a benefit to the farmer, and dissipated by the winds.

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Where the length of carriage has not forbid the use of chalk, it has indubitably produced for a time upon the tough heavy clays in this county, very beneficial consequences; the practice however, begins to be much deplored, and that by very observing and able persons, on a supposition, that the old chalked lands, at this day, are equally obstinate, and far more sterile than they otherwise would have been, if chalk had never been applied.

With chalk, as with lime, and all other calcarious earth, in a proper state, animal and vegetable matter, will to a certain degree combine, and in that combination produce fermentation and vapour, or form something that shall be soluble in water: in either case, there is evidently a chemical action, the effects of which, contribute very largely to the powers of vegetation.

So long also as the chalk remains in an imperfectly dissolved state in the soil, it acts as it were mechanically, and renders the tough strong clays and tile earths more tractable. But the whole of the chalk is capable of being carried downwards, by its specific gravitation or solution in water; an effect, which after a few years, and in every soil that must necessarily take place, and the land will then be completely washed, and freed from the calcarious earth; here the mechanical action of the chalk must cease, nor may it be adviseable to renew it, quoad its beneficial effects mechanically, as it is presumed, and not without good reason, that in like manner with lime, it has a tendency to lock up a large portion of vegetable food in an insoluble state, but capable of being dissolved with some acid or other alkali, to which the insoluble matter may have a greater affinity than to that of calcareous earth; an opinion which is strongly supported by the preference generally given to fopers waste lees, and  
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ashlip upon old chalked ground, rather than to attempt a renovation of the land by a new chalking.

The good effects of what the farmers generally term a fresh tickling with chalk, is certainly to be ascribed to its mechanical operation in the first place, but more generally to the richness and quantity of vegetable food, contained in the virgin mould, and with which the chalk is always mixed.

The application of manure upon the surface, or what is generally called top dressing, ought chiefly to be regulated by the following considerations :

- 1st. Whether the soil is of such a nature as to require any correction in its temperament, to render it more or less tender, open, or friable.
- 2d. Whether the manure proposed to be applied, is capable of operating to that end.
- 3d. Whether such manure is incapable of affording nourishment to vegetables, unless it is brought into close and immediate contact, with some other power or latent principle, containing vegetable food in the soil.
- 4th. Whether the plant proposed to be fed by such manure, draws its nourishment principally from the ground.

In the affirmative of all these cases, it is plain the manure should be covered or lightly ploughed under.

But when the manure is of such a nature, as to apply but lightly to such considerations when it is capable of being dissolved on the surface, and conveyed by water downwards to the roots of the plants, or by conversion into vapour, to be absorbed by their stems or leaves ; and that the plant is equally prone to receive its nourishment in both ways ; the economy and effective operation of top dressings, is unquestionably the most highly beneficial, and greatly to be preferred.

## SECTION IV.

*CROPS.*

**A**S the general rotation of crops through this county, and the result of that management is accurately detailed at the end of each district, it only remains necessary to state, in this place, such observations as may probably lead to some improvements therein.

The system of single crop and fallow, is by many people much extolled for its superiority, as a proper, and complete routine of heavy land husbandry; complete it certainly is, and would be proper also, were it not possible to preserve the land in much higher condition, and at the same time to render it more productive in valuable crops.

The plants which are designed to be generally recommended, as intermediate crops between those of wheat, oats and barley, are peas, beans, tares and clover; the three first, from their drawing or requiring but little nourishment from the earth; the last, from its being well known as the best possible preparative for a crop of wheat. To these may be added, upon the driest land, the occasional culture of potatoes, cole or rapeseed, for spring food; and cabbages, though the expenditure of manure and labour, necessarily required in bringing to perfection the last named crop, must ever prove a bar to its general cultivation, and in the husbandry of England, confine the culture locally, and to a very narrow scale.

In adapting the leguminous, as well as the farinaceous or white straw crops, to the soils best suited to their nature,  
and

and to the placing of the plants, or the seed, most properly in the ground, a few observations here may be particularly necessary.

The land upon which peas or tares may be cultivated to advantage, does not require to possess so deep a staple, as that appropriated to the culture of beans; the seed of which, in most soils (be their texture what it may) should never be deposited at a less depth than five or six inches below the settled surface of the ground. The necessity for placing the bean thus deep, will appear very obvious to any one, who will take the trouble to inspect the root of the bean, when the plant has attained to its full growth, and its seed to its compleat maturity: it will then appear evident, that from the point where the seed was deposited in the ground, it sends downwards a long slender tap root, and upwards a thick strong one: along this upper division of the root, lateral fibres are detached from the seed, to the surface of the ground, and are evidently destined to collect and convey nourishment to the plant. The long tap root which descends perpendicularly, and to a great depth from the point where the seed was placed in the ground, being perfectly clear of laterals, will not be supposed to contribute, but in a small degree, to the growth and subsistence of the plant. Hence the necessity of placing the bean to a proper depth in the ground, that the plant may not be deprived of its proper organs for receiving and conveying from the earth, that portion of nourishment which the bean requires; but which, as well as in the case of peas, or tares, will not be found equal to that constantly demanded and drawn from the land by turnips, cabbages, and the white straw crops.

To exemplify this truth, it is only necessary to attend to the effect the root of trees produce along the hedge rows upon the last mentioned crops, but whose effects are scarcely to be discerned in those of peas, tares, and beans.

Clover is observed to be effected, in a certain degree, by the exhausting power of the roots of trees and bushes; but this forms a small part only of the evil so generally complained of, that the land, after a while, gets sick, and tired of this most valuable plant. That the land may require a change from clover, as well as from every other crop, is readily admitted, yet the frequent failure of that grafts upon the stiff heavy lands in this county, may (it is humbly presumed) in too many instances be ascribed to mismanagement: for upon those lands, it is the usual practice, after making a summer fallow, to lay up the land into four furrow work for the winter; it being alledged (and with much reason) that the soil is of such a nature, as to require the meliorating influence of the frost, to render it sufficiently tender and open, for the reception of the spring grain. As this land may be more or less liable to be chilled and injured with water, the furrows are shut close, and the ridges laid the higher. In this state the fallow remains through the winter, and the spring corn is too frequently sown without previously harrowing the ridges to a smooth and even surface, for the seed to lodge upon. The barley however is sown, the ridges are made the furrows, and after being slightly harrowed across, the field is sown with clover: hence the barley which fell into the furrows gets overburied, and a sick and languid appearance prevails along the top of the ridges during the spring, and early part of summer; and although at harvest the plant of clover may appear both uniform and sufficient, it is nevertheless in the spring following found to fail upon the tops of the ridges, and the field too often remains partially barren, during the ensuing course of the summer season.

To account for these effects it is necessary to premise, that the seed of barley, oats, wheat, and rye, should be placed

placed in the ground, as nearly as possible to that point upon the main root, where the lateral fibres are put forth for feeding and supporting the plant, and which in most soils will be found to be between an inch and a half and two inches below the settled surface of the field. Until these roots are formed, the seed roots, or those protruded directly from the grain, are the only organs by which, through a pipey cord, the plant can derive any possible nourishment. The more remote therefore the grain or kernel is placed from the crown of the plant, the more weak and languid must the circulation and supply of those juices be, which in the early growth of the plant, and before the unfolding of its foliage, must form its principal, nay only support. Hence the unhealthy appearance of young barley, and indeed that of every other grain, when improperly put into the ground, and injudiciously covered.

The cause of the loss in the plant of clover, upon the tops of the heavy land ridges, appears equally clear and conclusive.

It is well known, that the roots of the clover act directly downwards, and to a considerable depth. The highly exposed situation of these ridges, occasions the frost to act with its fullest force, penetrating to their centre, and forming a bone (if the word may be used) of ice, through the heart of every ridge ; here, after the first frost, the tap root of the clover is rivetted, whilst the frequent and alternate freezing and thawing of the surface in the course of the winter, swells out, and bursts the top of the ridge ; thus breaking the tap root, and destroying the plant of the clover —hence its destruction upon the tops of the ridges, and its safety in the furrows, where the plant is fortunately secured beyond the reach of such a fatal influence.

A few

A few words with regard to the culture of cabbages, will be sufficient to point out the necessity of an intermediate transplanting of the young plants between the seed bed and the field ; for, when the plants are drawn from the seed bed, and put directly into the field, they are found to be out of all proportion, tall, slender, and altogether unfit for their new and exposed situation : to this must be added, a long tap root without lateral fibres ; and which necessarily undergoes several twists and doubles in the hole by the operation of planting : here the plant languishes till its lateral roots are formed, which is gradually doing as the tap root decays. As the season may be more or less kind, the plant may droop for a while, but it too often happens, and that in despite of the most unwearied industry, that the plant loses its life, and its tap root together : hence arises the necessity of such frequent replantings, and herein lurks the cause of that universal langour, which so long prevails through all the fields of cabbages that are thus transplanted into the field directly from the seed bed. It is the nature of the cabbage to lose its tap root upon its first removal ; and in its place is put forth a bunch of lateral roots, just below the surface of the ground. The stem of the plant then begins to strengthen, and its leaves to spread. This change in the root being compleated from an intermediate transplanting, the young plant will be the better able to combat the hardships of its new situation in the field ; for being already furnished with lateral roots, its nourishment from the ground will be immediate and certain ; it will flourish, and come to an early maturity, rather than languish for a while, and then perish, as thousands now do, or creep slowly on till late in the season, they arrive at a stunted and unprofitable end. In proportion as the lateral roots increase, and collect nourishment, the plant heads and flourishes ; nor would the kindest plant upon the

most

most favoured soil, cabbage, or ever come to perfection, were it not by some means or other deprived of its tap root. The expence therefore, of an intermediate transplanting between the seed bed and the field, to those who are desirous of excelling in the culture of cabbages, can bear no proportion whatsoever, to the labour, expence, and disappointment, that must for ever await the want of so material a training and preparation of the infant plant.

As the observations in this section have been particularly applied to the crops, produced from the husbandry of the heavy lands, it follows regularly in course, that something should now be noticed concerning those crops produced from the husbandry and management of the lands, which are of a more gentle light and temperate nature.

That the common husbandry of this description of land is greatly to be improved, is clearly manifested by the details of Great Bardfield, Aveley, and Hornchurch, where the necessity of fallowing is in a great measure done away, by the land being continually occupied under a series of profitable crops. That nature is never at rest, is no where more clearly exemplified than in the case of a fallow field, which being no longer employed in the support of a crop that is valuable, is voluntarily putting forth weeds and rubbish, which it would surely have been wiser to have prevented from growing, by the umbrageous influence of a non-exhausting crop, than to have encouraged their growth for the sole purpose, as it should seem of incurring a heavy expence in destroying of them afterwards.

The quantity of gas or vapour that is hourly exhaling from a fallow field after rain, or every fresh ploughing, is improvidently lost; and argues a want of economy that is truly reprehensible: indeed it has long been a matter of serious

serious consideration, and doubt, whether in the process of fallowing (the temperate and light lands) that the succeeding crop may not be injured to a greater degree, by the frequent and long exposure of the energies of vegetation to the summer's heats, than may be equal to all the benefit derived to the crops by the destruction of weeds; for which purpose however, the leguminous crops, and the hoe, form an admirable substitute.

That the hoe will answer an excellent purpose in cleansing and meliorating the surface soil, there can be no doubt; at the same time it is material to recollect, that as the fibrous roots of the corn approach so very near the surface, a due regard should be paid, both to the time and manner of conducting its operation; as the dislevering from the root, or bruising the smallest fibre, must be productive of proportionate detriment and injury to the crop.

The weed hook in many cases will be found more effectual than the hoe, particularly in keeping down thistles and those weeds which have a pipey stem; for it has frequently, and may always be observed, that thistles cut an inch above the ground, will not be so formidable at harvest, as those cut at the same time with the hoe, and below the surface. In the former case, the remaining stub of the thistle gets filled with water, which resting upon the crown of the plant, injures it so far, as to occasion a few feeble shoots only to rise; whilst in the latter, strong and luxuriant shoots stool forth, that become extremely injurious to the crop, and inconvenient to the reapers.

The weeds, which to guard against in this county, require the greatest care, and are attended with the heaviest expence in keeping under, are the black grass and crows garlick; these are found most generally to prevail upon the strong moist

moist soils, and are only to be kept within moderate bounds, by making a thorough summer and winter fallow for spring corn, rather than for wheat; and as there is no condition or good heart, in which the land may be, that will in any wise prevent these weeds from materially injuring the most promising crops, it has been found expedient to encourage their growth to a certain stage, that their destruction may be rendered more complete, by ploughing them under.

Wild-gold, couch-grafs, goose-grafs, red-weed, are proportionately troublesome upon their various soils; the first may be eradicated by hoeing and weeding, though at much hazard to the crop, expence and labour: as to the latter, the means of subduing them, are so well known and practised, as to require but little further to be said upon the subject.

To complete however their destruction, and the necessary pulverization of the lighter land, it cannot be necessary to plough so frequently, though it is absolutely required to plough much deeper, than is the common practice at this time. Upon the light tender lands, one or two clean deep ploughings is all than can possibly be required for a single crop (and strange to say) one or both of these earths, under certain circumstances, had better be dispensed with; as the horse-hoe, roller, and harrow, will, in many cases, do all that is necessary.

From too much solicitude (and there are but few that will not furnish examples of the truth) we often defeat the very purpose we wish to serve; and herein the care of the Essex farmer is often requited with loss and disappointment, instead of that benefit and reward, he so justly merits by his diligence and labour. The pains so unremittingly bestowed in pulverizing the foil for turnips, is frequently the principal cause in the failure of that crop, it being no unusual appearance

in a field sown with turnips, to find a regular healthy plant in the furrows, whilst along the tops of the stetches the failure of the crop is regular throughout the field; and this can only be accounted for from the moisture exhaled from the former furrows, and to which the top of the stetch was not proportionably exposed: the drought here must have penetrated on each side, and in the bottom of the furrow, and finally have exhausted those parts of the field of that portion of moisture, retained in the body of the stetch; for although in the last ploughing, the top of the stetch became the furrow, and consequently a greater surface was then exposed to exhalation, yet it still retained a sufficient quantity of moisture, not only to cause the seed to vegetate, but to push the infant plant into the rough leaf, and completely out of danger; hence arises a necessary caution in preparing for turnips, to guard against the dissipation of moisture, by restraining as much as possible, the too frequent ploughings, in summer fallowing of the field.

A considerable part of the moist sand, and gravelly loams, might be cultivated with turnips to advantage, were the Scotch two-furrow or ridge practice properly pursued, and the land left well water furrowed. With the means of a low carriage upon a sled, the turnips might be got conveniently from off the land, and in this, great care should always be taken to have the field cleared before Christmas, or at farthest before the spring or feed tops begin to shoot, otherwise a very material injury will accrue to the succeeding crop.

The blights which immediately destroy, and those which often precede the insects that more or less prey upon the roots, leaves, blossoms, and tender kernels of plants, are of all the evils attaching upon the rural life, the most calamitous

mitous to the farmer, falling as indiscriminately upon the industrious and skilful, as upon the slothful and undeserving.

The red gum or rust, which prevails through the Roding district in a dry summer, and which so materially injured the crop of barley last year, is generally observed to come on when the barley is in spindle, and to precede a fly which strikes the blossom or seed vessels of the wheat ; here a maggot is produced, and soon after the grain is set, it feeds upon, and consumes the tender kernel. Something very similar is frequently noticed in the clover, and proved generally injurious to the seed last year. In every part of the county, but particular in Dengy district, the fly called the collier, made considerable ravages among the beans ; and the crops of peas and tares were destroyed early in the summer, by a small green insect, resembling a young grasshopper.

To prevent these visitations is impossible, but in some measure to palliate their injurious effects, may probably lie within the power of man ; and this to a certain degree has been effected, in preventing the curly blight in the culture of potatoes, and the smut in wheat.

Reasoning thus, and taking into due consideration the very important benefits which are derived from coal tar, in preventing the depredations of marine insects on plank and timber ; it very naturally occurs, that a preparation of coal tar, judiciously applied, might not only produce a similar effect against insects in the ground, but by its gradual and regular solution, become matter of food for the nourishment of plants ; and this leads to a very important consideration of how far the application of coal tar may be rendered serviceable, by prolonging the durability of posts in the ground, and in like manner for the preservation of hop poles ; to which particular point it is with extreme pleasure, an opportunity

portunity offers for stating the substance of a conversation with the Earl of Dundonald on this subject, who recommends the following method of preparing the hop poles, to the serious attention of the growers of hops.

The ends of the hop poles, intended to be inserted in the ground, should first be stripped of the bark for the length of thirty inches. The poles must then be pointed, and scorched or burnt, until the surface, from which the bark has been taken, becomes black. The customary depth which the poles are fixed in the ground, will regulate how much of the pointed end should be treated in this manner. The burned end of the pole, whilst hot, should be dipped into thin coal tar, which should be previously made warm in order that the wood may absorb as much as possible. There perhaps may be an advantage in dipping the pole the whole thirty inches, stripped of its bark, so that twelve inches of what is covered with coal tar, should be above the surface of the ground. The poles are then to be stacked with their pointed ends upwards, until sufficiently dry; after which, they should be dipped in coal pitch, made boiling hot, and set up a second time in the same manner, and so remain until they are required for the plants. If the poles are subject to injury at the upper or smaller ends, dipping them into the coal tar, might probable be of use, in preventing the separation of the bark, or the harbouring of insects.

The tar and pitch may be had in different states of preparation, at the British Tar Company's Office in London. This practice was recommended, and apparently with good reason, by Lord Dundonald about ten years ago.

## CHAPTER THE THIRD.

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**Pasture.**

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THE islands bordering upon the sea coasts, (Mersea excepted) and the lands which have been produced by, and embanked at different periods from the sea, were formerly under pasture, but of late years a considerable portion of them have been brought under the plough. A state of pasturage is unquestionably best suited to these lands, particularly after they have been properly improved and brought to a good herbage. In that state they would be most profitably employed in grazing sheep and cattle, were it not for an inconvenience which they all labour under, in the want of a constant supply of wholesome water. With regard to such of these lands as are appropriated to tillage, the practice of exhausting them before they are again laid into pasture and grazing ground, ought carefully to be avoided; yet in all cases where the rough and uncultivated marshes have been previously chalked, they should be kept in occasional motion with the plough for three or four years, and then laid down for permanent pasture: but where this indulgence may not be allowed by the landlord, the journal at Toolesbury states, that at a moderate expence, a very considerable improvement may be made in such marshes, by removing the ants hills into the rills and low places. The water without injury  
to

to the fences, might be run down to a lower level, by cleansing, and deepening the partition ditches; and thus the rushes would be destroyed, and a more regular and effectual fence preserved, together with a better supply of more wholesome water during the dry season.

After exposing the cold and long settled soil of the old marshes, to open and meliorate for three or four years under the plough; the last crop should be taken and the land again laid down into grass. From this treatment a very superior herbage would be produced, answering equally well for making into hay as for feeding green and fattening cattle.

The hay which is generally made from the coarser marshes, though shut up in due season for that express purpose, as well saved, and of an equal quality to the eye, is not to be compared in point of nourishment, to an apparently good hay made from the higher lands; and as the grass of the one is composed of nearly the same variety, and found in the same proportions as the grass of the other, the difference can only arise from a want of that uniform growth and perfection in the marsh grass, as there is in that which is grown upon the higher lands possesses.

This explanation is strongly supported by the feeding quality of the marsh grass, when selected by the cattle and eaten green.

The coarse highland pastures, (after having been previously hollow drained) should undergo the same treatment as the coarse marshes; *but in neither case, should the smallest portion of vegetable matter be burnt, that in any reasonable time it were possible to rot.*

## CHAPTER

## CHAPTER THE FOURTH.

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**Poor and Labour.**

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THAT the value of labour is more generally proportioned to the price of provisions, in this county, than in many others in the kingdom, may be readily admitted; but that the poor's rates, which are now upon the rack rents through the county 3s. 6d. in the pound, should have increased one-third of that sum within ten years, and that also, without the least shadow of proportion in the increase of population, is certainly very strange, and argues a positive inadequacy in the value of labour, to that of provision, or a general mismanagement, or misapplication of *the revenues of the poor*.

As revenues of the poor, they may now with as much propriety, as roundly and as correctly be asserted, as any other revenue drawn from the subject, and attaching upon the crown.

Upon this principle then, it would surely be advisable to invest this description of people with such an interest in the management of their own affairs, as would best comport with their judgment and feeling, and ultimately tend to the exclusive conservation of that revenue agreeably to the purposes of its original institution: at the same time prevent

vent the future and further increase of that burthen upon the landed property of the kingdom.

With this view are the following hints suggested for the purpose of improvement.

Let the average value of labour in every parish be correctly ascertained, and let an augmentation thereon be made equal to the annual amount of the present poor's rates in such parish.

Let this excess be paid regularly, and in the usual manner, with the daily or weekly wages ; and let it be required that the same shall be subscribed by the labourers of the parish, into, and form one common stock ; subject to the appropriation and control of a committee of husbandmen, that shall be elected as examinators, or inquisitors, of the poor, by a majority of the subscribing parishioners.

Let an order from this committee upon the (person who shall previously have been appointed) treasurer, be the only authority for disbursements to the indigent poor.

Let every single man servant be eligible to subscribe 2s. 6d. or 3s. in the pound, upon his yearly wages, and let this be the criterion of his right of settlement.

Let every other right of settlement, saving that of apprenticeship, be completely done away.

Let every labourer, or house servant, who thus receives additional wages for this purpose ; the former withholding his subscription for a month, and the latter at the expiration of his year ; be considered as outcasts, and disqualified from ever being admitted as members of that society : but here let the odium particularly rest upon the labourer ; let him be distinguished

distinguished and avoided as profligate, let him be stigmatized as worthless and abased for ever.

Let the accounts of the treasurer be audited every year, and let the balance in hand, or the excess of the fund be declared proportionately to appertain to each individual subscriber, upon which, such subscriber shall have a claim or lion, so far, as in the event of his removal, he may withdraw it from that parish, and invest it in the similar fund of the parish to which he wishes to remove; but in this transfer, the money must on no account pass through the hands of the labourer, but through the medium of the treasurers of each parish.

This upon every occasion would prove an acceptable precursor, and insure the welcome of the labourer to his new situation.

How different the whole design from the melancholy expérience of thousands, who in the present day, and in the case of settlement only, are no longer treated as sensible and rational beings, but are hunted like wild beasts from parish to parish, not because they have offended against the laws of their country, or otherwise possess evil, which ought to be avoided; but too often because they may have piqued the parish officers; or that some of those gentlemen may occasionally wish for a frolick, at the expence of the parish, or for an agreeable excursion in a post chaise: but this, together with the immense sums annually expended in legal contests concerning the removal and settlement of paupers, and which are necessarily charged to the account of the poor, would on a certainty be saved, were an arrangement generally adopted, somewhat similar in principle to that above stated.

With regard to workmanship, or the mode and manner of conducting labour, it differs so very little from the

general practice in this part of the kingdom, that as little occurs in this place as necessary to be said upon the subject. The mode of innning the harvest at present, appears to be the most important and material.

In most places this is done by engaging a certain number of men, who receive a fixed sum for their time, be it long or short, and are fed by the farmers during the whole time: hence it frequently happens, that soon after the harvestmen arrive, by the heat of the season, and change of food, they get a surfeit, and many of them are laid up for the first week or ten days with inflammatory fevers. From a gallon and an half to two gallons of strong harvest beer, is their usual allowance, with as much refreshing small beer as they choose to drink; this, together with a profusion of animal and vegetable food, constitutes their daily fare.

In this manner the men are fed, and supported for a month or six weeks, but in the interim, what becomes of their wives and children? depending upon the harvest wages, to pay rent, and provide a little winter fuel; they are compelled to subsist upon a few loose ears, gleaned in the fields, instead of participating with the men in their labour and subsistence, by an arrangement similar to that noticed in the journal at Sturmer.

By such management the necessities of a poor family in that plentiful season are much relieved. By their mutual co-operation and subsisting together, their earnings are increased, and their little scale of comforts proportionably enlarged—The husband in sharing and dividing with his wife and children, the labour and comforts of the season, becomes exempt from indisposition, and the whole family are thereby invigorated to make the best possible use of that precious season.

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To diffuse these comforts as generally as possible, and by a new arrangement in the management of the poor; to restore that honest pride, which was once the boast of the English husbandman, (viz.) That he disdained to receive assistance from the parish, but under the most pressing circumstances of indigence and distress, cannot fail to prove a source of the very highest moral and political consequence; for in the very lowest walks of life, as well as in those of higher degree, there is a pride which displays the man, and adds worth and dignity to the human character; and through all the shades of society, which compose the inhabitants of this highly favoured island, there are none, who, without the compunction of positive guilt, that are so completely wretched, as not to derive some increase of happiness from a strict adherence to virtuous emulation. To save from falling, is better than to raise up; and to prevent an evil, is better than to supply a remedy. Suffer a poor, but sturdy ploughman, to receive the parish collection, and he feels himself degraded for ever after: the pride which was once his boast, becomes his torment, and the very acts of peculation, which his honest soul would have scorned before his degradation, becomes familiar under cover of the night, and the hope of concealment and impunity.

## CHAPTER THE FIFTH.

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**Roads.**

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NOTHING can more clearly evidence the value and importance of good roads, than the great improvements to which of late years they have so much contributed, by affording a more ready admission of manure, and a free circulation of air, thereby materially improving the soil and climate of Dengy Hundred. In many parts of the county the difficulty and expence of procuring proper materials for making good roads, is very great; but even in those places (and although the materials may cost from one-penny to three-half-pence a bushel, and the road rates upon the rack rents being occasionally from three to four shillings in the pound) the exertions of the parishioners are unceasing, seeing that their health, comfort, and convenience, are so much dependant thereon. In this pursuit, however expensive and meritorious, the exertions of the *tenantry* are often weakened and discouraged, by the very unequal assessment of the parish rates; and the yeoman and tenant are too often subjected to, and aggrieved by the imposts inflicted upon the carriage and transportation of manure upon the adjacent public (and often inferior) turnpike roads; than which nothing ought to be more carefully guarded against; as in the general scale of rural improvements, imposts of this nature must be considered as the most invincible of all obstacles, to the improvement of those lands which do not contain any natural manure, as thereby a prohibitory tax is laid upon the admission and application of that which is foreign or artificial.

CHAPTER

## CHAPTER THE SIXTH.

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**Wastes and Forests.**

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IN no part of the kingdom can the value and importance of land be so great, as within a short distance of the metropolis; yet in this county, to find such extended and comparatively unproductive wastes, is not more matter of surprise to foreigners, than a source of real injury to the kingdom at large. The journal has already expressed so fully the present value, and the probable improvement of which these lands are capable, that little further remains to be noticed in this place, than a few observations touching the expediency of keeping such parts of the forest land as are favourable to the growth of oak timber, expressly for that purpose.

“ The right of cutting wood, varies in different parts of  
 “ the forest ; and where it is left to the discretion of the in-  
 “ habitants, nothing but mutilated hornbeam pollards are  
 “ to be seen, whose heads are cut whenever a few faggots  
 “ can be collected from them.

“ No bushes are there allowed for the protection of the  
 “ young plants, without which, a succession of trees cannot  
 “ be preserved against the bite of the deer and other animals.

“ On that part of the forest, within the parish of Epping,  
 “ consisting of 527 acres, the lord of the manor has by dif-  
 “ ferent

" ferent grants from the crown, the exclusive right of  
" all timber, underwood, and bushes. The land is well  
" adapted to the growth of wood in general, more particu-  
" larly to that of oak, which by the judicious management  
" of the present possessor, is in a very flourishing state.

" The soil of the forest is either of a brick earth, or a  
" cold gravelly clay ; and (as was observed in the journal)  
" the deer have increased very much of late years, not to  
" the advantage of the neighbouring farmers, whose crops  
" of hay and corn are certainly much injured by them."

## CHAPTER

## CHAPTER THE SEVENTH.

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**Tenures.**

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ONE very material error exists in the present mode of occupying farms throughout this county; which is that of one person monopolizing several farms, and holding them as it is termed, “ off hand”. These farms lie frequently detached and very wide of each other, and a looker or superintendant, at ten or twelve shillings per week, occupies the ruins of the old mansion or farm house, which was heretofore the seat of hospitality, industrious emulation, or modest virtue. In the course of the tour, it was observed, with much indifference by an overgrown farmer’s wife, “ that her husband had *but* nine farms in his occupation;” each of which upon further enquiry was found to be equal to the care and capital of the same number of equally skilful and respectable, although perhaps not such wealthy and imperious families.

This practice of consolidating, or rather suffering one person to occupy and monopolize, so many distinct farms, is (without going into the question at large, which would require too much room) whatever may be asserted to the contrary, fraught with more evil, and is more destructive to the agricultural improvement and produce, and political interests of this country, than any other at present existing, and which cannot be done away, without the power and authority of Parliament.

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With respect to leases, there is but little room for complaint in this county, as the farms in general are held under running leases for three seven years, which are virtually and in fact leases for twenty-one years; hence the general spirit, and costly improvements of the Essex farmer, stand unrivalled in any part of the kingdom.

In the agricultural survey of Aberdeenshire, a plan of a lease by the late Lord Kaims is noticed, which, with Dr. Anderson's additions, is made by that gentleman to embrace every thing necessary on that score, to further the improvement of the country; at the same time mutually and equally to conserve the interest of the landlord and the tenant. The scheme, which is certainly the offspring of ingenuity, combined with the produce of a great deal of thought, is as follows :

“ I am extremely happy to have it in my power on this occasion to lay before the public at large, through means of the honourable board to whom this report is addressed, a plan of a lease which is perfectly adapted to secure a like interest of the tenant and the legitimate rights of the landlord; by which the rights of humanity can never be violated, and which can apply to all possible cases, so that neither of the parties can ever acquire an undue advantage over the other in any situation of things. To effect all these things appeared to me for a great many years to exceed the powers of human ingenuity to devise. It has been done; and the public are obliged to the late Lord Kaims for this excellent device.

“ His lordship proposed that the lease should extend to an indefinite number of years, consisting of fixed periods, at the end of each of which a rise of rent should take place

" place, with permission for the tenant, at the period of  
 " each of these rises of rent to give up his farm if he shall  
 " see proper, and granting a similar power to the landlord  
 " upon proper terms, to resume his land if he shall think  
 " fit. The particulars of this contract, and the grounds  
 " on which they rest are as under.

" He assumes it as a postulatum that a landlord and te-  
 " nant are capable of forming a tolerably just estimate of  
 " the value of the land in question for a short period of  
 " years, such as it is customary to grant leases for in Scot-  
 " land: say twenty-one years. And having agreed upon these  
 " terms, which, for the present we shall call 100l. rent, the  
 " tenant expresses a wish to have his lease extended to a  
 " longer period. To this the proprietor objects, on this  
 " ground, that it is not possible to form a precise esti-  
 " mate of what value the ground may be at the end of  
 " that period. He has already seen that ground for the  
 " last twenty-one years has increased much more in va-  
 " lue than any person at the beginning of that period  
 " could easily have conceived it would have done, and  
 " therefore he cannot think of giving it off just now for a  
 " longer period, as a similar rise of value may be expected  
 " to take place in future. This reasoning appears to be  
 " well founded, and therefore to give the landlord a rea-  
 " sonable gratification, he proposes that it should be sli-  
 " pulated that if the tenant should agree to give a certain  
 " rise of rent at the end of that period, suppose 20l. the  
 " landlord should consent that the lease should run on for  
 " another period of twenty-one years; unless in the cases  
 " to be aftermentioned.

" But as it may happen that this 20l. now stipulated to  
 " be paid at so distant a period, may be more than the far-  
 " mer will find he is able to pay, an option shall be given to

Y                          " him

" him to resign his lease if he should find that is the case, by  
 " giving the landlord legal notice one year at least, before  
 " the expiry of the leases; but if that notice be omitted  
 " thus to be given, it shall be understood that the tenant  
 " is bound to hold the lease for the second twenty-one  
 " years, at the rent specified in the contract. And if the  
 " landlord does not give the tenant warning within one  
 " month after that period, it shall be understood that he  
 " too is bound to accept of the stipulated additional rent  
 " for the twenty-one years that are to succeed.

" It may however also happen that the sum specified  
 " in the lease may be a rent considerably below the then  
 " present value of the farm: or the proprietor may  
 " have very strong reasons for wishing to resume the pos-  
 " session of that land, or to obtain an adequate rent for it:  
 " a power therefore should be given to him in either case to  
 " resume the lands, if he should so incline. But as a great  
 " part of that present value may be owing to the exertions  
 " of the farmer, who has laid out money upon the farm in the  
 " hopes of enjoying it for a second period of twenty-one years,  
 " it would be unjust to deprive him of this benefit without  
 " giving him a valuable consideration for that improved  
 " value. On this account it should be stipulated, that in  
 " case the proprietor at this time resumes the farm, he shall  
 " become bound to pay to the tenant **TEN** years purchase  
 " of the additional rent he had agreed to pay; which in the  
 " example above stated would be **200l.**

" But the land may be worth still more than the **20l.**  
 " of rise mentioned in the lease, and the tenant may be  
 " content to pay more, say **10l.** rather than remove; and he  
 " makes offer accordingly to do so. In that case, the land-  
 " lord should be bound either to accept that additional offer  
 " or to pay **ten** years purchase of that also; and so on 'for  
 " every

" every other offer, the tenant shall make before he agrees  
" to remove from the farm.

" In this way the landlord is always certain, that he can  
" never be precluded from obtaining the FULL value for his  
" land, whatever circumstances may arise. And if the tenant  
" shall prove disagreeable, so that he would wish rather to  
" put another in his place upon the same terms, it never  
" can be any hardship upon the landlord to pay the stipu-  
" lated sum; because it would be the same thing to him  
" as if he bought a new estate at TEN years purchase free  
" of taxes: a thing he never can expect to do. It is indeed  
" true, that it would be more advantageous for him to allow  
" the present tenant to continue: and therefore this alter-  
" native will be always, unless in very extraordinary cases  
" accepted of, as it ever ought to be; and thus the tenant's  
" mind is impressed with a conviction that he will con-  
" tinue in his possession: a conviction that ought ever to  
" prevail, because it stimulates to industry in the highest  
" degree.

" And as the tenant is thus certain, that at the very  
" worst, his family must be entitled to draw a reasonable  
" remuneration for the exertions of his industry, he can  
" never find the smallest tendency to slacken his endeavours  
" in any way..

" By stipulating in the original lease in the same manner,  
" that at the end of the second twenty-one years the lease  
" shall be continued for twenty-one years more; and so on  
" at the end of the third, and fourth, and any farther  
" numbers of periods of twenty-one years, on agreeing to  
" pay a specified rise of rent; reserving to each party the  
" same privileges as above described, the lease might be  
" continued to perpetuity, without either party ever being  
" in danger of having an undue advantage over the other.

“ The tenant will always be certain of having a preference  
 “ given him over every other person, and will of course go  
 “ on with unceasing exertions to better his land, which will  
 “ of necessity tend to augment the income of the proprietor  
 “ much more than could have happened under any other  
 “ system of management.

“ Such are the outlines of that plan of a lease that his  
 “ lordship has proposed. By this plan the tenant's hands  
 “ are not tied up by restrictive clauses dictated by igno-  
 “ rance, under the pretext of securing the interest of the  
 “ landlord. His interest is secured in a much more effectual  
 “ manner, while the tenant is left at full liberty to avail  
 “ himself of his knowledge, his skill and his industry.  
 “ Instead of ceasing to begin any arduous undertaking, as  
 “ he ever must do where he has no lease, or of beginning  
 “ to improve for a few years only at the commencement of  
 “ his lease, but stopping in a short while in the midst of  
 “ his career, and then running it down to the same exhausted  
 “ state as it was at its commencement, he continues to push  
 “ forward without ever stopping; and advances even with  
 “ an accelerating progress for an endless period of years.  
 “ No person but an experienced farmer can conceive the  
 “ difference that would be between the productiveness of the  
 “ same land under this management, at the end of a hun-  
 “ dred years, from what it would have been if let even for  
 “ detached periods of twenty-one years each. In unimproved  
 “ waste lands, the difference would approach to infinity.  
 “ In lands which were originally very rich, the difference  
 “ would be less considerable; but in all cases were cul-  
 “ tivation could take place, the difference would be very  
 “ great.

“ It is worth remarking here also, that if this arrange-  
 “ ment were adopted, a new order of men in civil society  
 “ would

" would be created, different from any that at present  
 " exists. They would be inferior in point of rank to that  
 " class of men who are called *gentlemen*, and superior in  
 " point of wealth and energy, not only to the present order  
 " of *farmers*, but even to that class of men who are called  
 " *yeomen*. The peculiar political advantage attached to  
 " this order of society would be, that while their exertions  
 " would always insure influence, that influence never could  
 " become such as to permit them, by imitating the life  
 " of the higher orders, to neglect their own proper con-  
 " cerns; for the moment they did so, their exertions in  
 " business would become slackened, in consequence of  
 " which, they could not afford such a rent as others around  
 " them would be willing to give, and so they must quit  
 " their lease.

" Here we are led to perceive the most essential difference  
 " between *this* granting what may almost be called a per-  
 " petual lease, and every other *long* lease that ever yet has  
 " been tried; for in all other long leases, if the rent stipu-  
 " lated at first shall prove to be at last inadequate, and the  
 " holder of the lease be reduced to poverty, by dissipation  
 " or otherwise, he may neither himself be able to cultivate  
 " the ground properly, nor can another be permitted to do  
 " so; and by this means the proprietor may not only be,  
 " for a long period of years, deprived of an adequate value  
 " for his land; but that land also being locked up from  
 " improvement, may be doomed long to remain in a degree  
 " of comparative sterility. Nothing of that kind could  
 " here happen. It differs also very much from that sort  
 " of tenure which is called *yeomanry*, in which their small  
 " capital, which if properly applied, would have been just  
 " sufficient to give scope for agricultural exertions, by be-  
 " ing locked up on the original purchase of the land, de-  
 " prives the possessor of the only funds he had in his  
 " power

" power to apply for improving his land. Instead of active  
 " exertions, and cheerful affluence through life, he is thus  
 " stinted in every exertion; and is doomed to a perpetual  
 " hard struggle against the harassments of poverty. In short,  
 " were I either a proprietor or a tenant, I should either  
 " let or take land upon these terms in preference to any  
 " other I have ever heard of. †

" Several little clauses have been overlooked by his lord-  
 " ship which it would be necessary to advert to. Some  
 " provision ought to be made respecting trees on a lease of  
 " this kind,—as it is probable the tenant might find it con-  
 " venient to plant, which by the common law of Scotland,  
 " he cannot do at present with a view to profit.\* Per-  
 " haps the wood, if any was on the farm at the time of his  
 " entry, ought to be valued; and he should be bound to leave  
 " at least an equal value upon it, or pay the balance.  
 " Whatever timber trees he himself had planted, he should  
 " be at liberty to cut at pleasure, for the use of the farm,  
 " unless it were such individual trees as the landlord, from

† " Those who are fond of political calculations may have here full scope for  
 " their ingenuity, by supposing that two men of equal spirit, knowledge and  
 " capital set out in the agricultural line, one of them as a FARMER on a lease  
 " of the kind here proposed, and the other as a small proprietor, or YEOMAN. Let  
 " the capital be taken any how at random, say 2000l. The YEOMAN we shall say  
 " lays 1500l. of that sum on the purchase of a farm, which at thirty years pur-  
 " chase, the usual rate at present, would be worth 50l. a year, and he has 500l.  
 " left for stocking and improving it. The other leased a farm which at a fair rent  
 " was worth 200l. a year. Let him follow out the calculation, first in regard to  
 " the profits that the different occupiers themselves can enjoy, and the rate at  
 " which their families may afford to live, and second, with regard to the aug-  
 " mentation of agricultural produce that each of them could afford to the state;  
 " and let this be continued for the space of an hundred years. Let him then  
 " strike the balance and see what an amazing difference.

\* " By the law of Scotland, no tenant has a right to cut any trees upon his  
 " farm.

" situation

“ situation or other causes, should think proper to mark for  
 “ reservation. He should also have permission to sell such  
 “ trees as he inclined, unless as above reserved, or during  
 “ the last six years of any of the twenty-one years of the lease.  
 “ But in case of his removal, the proprietor should either  
 “ permit him to sell the whole trees that was over the va-  
 “ lue of the stock at his entry, or take the whole, or such  
 “ part as he chose to reserve, at an appreciated value. In  
 “ case of his removal also, the tenant should be bound not  
 “ to out-labour the ground during the last six years of the  
 “ lease, or to crop it improperly, or to carry off any straw  
 “ or dung : otherwise to pay the damages that should thus  
 “ accrue to the landlord at the estimate of two honest men  
 “ to be mutually chosen : and to leave the houses in a ha-  
 “ bitable condition, and the fences in good repair. There  
 “ seems to be no other clause necessary in such a lease.

“ *Farm buildings, &c.* With regard to ordinary leases for  
 “ nineteen or twenty-one years ; one of the greatest incon-  
 “ veniences to which tenants in Scotland at present are sub-  
 “ jected with regard to these is what respects houses. The  
 “ houses are for the most part very poor ; and many pro-  
 “ prietors throw too great a burthen upon the tenants.  
 “ This is highly impolitic. Nothing contributes more to  
 “ the content and conveniency of a farmer than good and  
 “ well disposed buildings. It elevates his mind ; gives him  
 “ spirit to pursue his operations with alacrity ; and contri-  
 “ butes in many instances to augment his profits. On these  
 “ accounts he ought to have them.\* But on no account  
 “ should he be induced to expend that stock upon building  
 “ houses which should be employed in extending his own  
 “ proper business ; it ought always to be done by the land-  
 “ lord ; and in general, a good set of houses upon a farm  
 “ will bring a much greater additional rent than the interest  
 “ of

\* “ I never yet saw a thriving tenant who had not neat houses;

" of the money expended upon them. If then a farmer  
 " possessing a farm, or bargaining for one, wishes to have  
 " houses, these should be built by the landlord in a good  
 " substantial manner, on a plan suggested, or at least ap-  
 " proved by the tenant. The tenant furnishing carriages  
 " and paying at the rate of five per cent. for the money so  
 " expended ; becoming bound to uphold the houses in good  
 " repair, during the currency of the lease ; and to deliver  
 " houses to the value at least of the money expended by  
 " the landlord ; taking the tenant bound likewise to pay,  
 " along with his rent annually, the premium of insurance  
 " for the value of the houses against losses by fire.  
 " Any other restrictions are unnecessary even in this case  
 " than those above specified respecting the last years of the  
 " lease.

" Draining, trenching, and other expensive operations  
 " on a farm that continue to be permanent improvements  
 " ought also to be done by the proprietor ; the tenant who  
 " desires these to be done, agreeing to pay the proprietor  
 " during the currency of his lease, by way of additional  
 " rent, at the rate of five *per cent.* on the money thus expend-  
 " ed under his own eye, and in the mode approved of by  
 " the proprietor. In this way he would be making con-  
 " tinual additions to his estate, at the rate of twenty  
 " years purchase, *free of taxes* ; and as the tenant would  
 " thus also be enriched, he would be enabled to adopt other  
 " spirited modes of improvement, which would render  
 " it still more valuable ; so that if the plan of a lease  
 " here explained were adopted, he would in many cases be  
 " enabled to draw at the end of each fixed period instead  
 " of five, perhaps twenty-five per cent. for the money so  
 " advanced. By making improvements somewhat on this  
 " plan, for the behoof of his tenants, Mr. Bayly, of Hope,  
 " near Manchester, has advanced the rent of his estate in  
 " little

" little more than twenty years near ten fold!!! Operations  
" on the same plan have been carried on upon a considerable  
" extensive scale by Mr. Cumming of Achry in Aberdeen-  
" shire; who has in like manner by that means greatly  
" increased the value of his estate."

It would be equally presumptuous and obstinate to withhold that due approbation which the excellency of this plan so justly claims; at the same time, the following observations are with all due deference very humbly submitted.

The tenant should be restrained, and that under the severest penalty that it were possible to devise and enforce obedience to, during the whole term of his lease, from breaking up the prime pastures, or any of the meadow land.

The compensation to the outgoing tenant should be confined strictly to the value of such benefits as the farm has actually, and exclusively derived from his labour, skill, and capital; and which should be determined by the judgment of persons living in the neighbourhood, and appointed by each party: otherwise local circumstances, under which in strict justice the tenant can have no shadow of claim, will subject the landlord to an unfair disbursement, and wring from him that concession which in strict equity he ought to resist. The change in the value of money; the increase of trade, or the establishment of a manufactory in the vicinity of the farm; and the consequent increase of population in the neighbourhood: the making of new, or the improvement of old public roads: the proximity of an inland navigation: a general plan of drainage; or the discovery of some natural manure (upon the farm) applicable to the further improvement of the estate; are all circumstances highly favourable to the interest of the owner, but which ought never to be appreciated by the outgoing tenant, as no

merit can attach to him from them, being the exclusive and indubitable immunities of the proprietor and of no one else.

Under some such modifications, the plan appears practicable—the tenant and his family will be secured in the full value of their improvements ; and the landlord protected in the just and full enjoyment of the increasing (real or nominal) value of his estate.

Having now adverted as particularly as the nature and limits of this paper will admit, to most of the several and distinct objects which formed the purpose of the survey, it now remains necessary to condense and put the whole into the smallest possible space, and under those general heads stated in the beginning.

The first will comprehend all those obstacles to improvement in the rural economics of the county, which the efforts of the individual, the co-operation of neighbours, or the union or agreement between landlord and tenant, may entirely remove, or in a great measure remedy. They are divided as they have occurred into separate propositions, and are as follows :

1. To guard against the exhaustion of dunghills, by preventing the rain from washing out, and the running to waste of its most valuable liquor, whether in the yard, or exposed along the hedgerows.

2. To be careful in the application of manure, and to weigh well and be satisfied in the propriety of ploughing it under, rather than to use it as a top dressing.

3. To discontinue the practice of burning the straw of coleseed, mustard, coriander, caraway, &c. and upon every occasion to resist the dissipating effects of fire,

upon

upon the smallest scruple of animal or vegetable matter, which in any reasonable time may be brought to rot.

4. To apply sand, or any silicious matter in great quantities to strong tough clay, or not at all.

5. To expose chalk, marl, clay, for some time to the joint action of the frost, sun, and air, rather than to attempt an immediate union of them with the soil by ploughing them under.

6. To swerve from the customary practice of performing the whole day's work at plough, or harrow, in one journey of seven and an half or eight hours, and in its place, to divide the day into two journeys of four and an half or five hours each.

7. To lose no opportunity in cultivating green food for horses or cattle; and to keep the former in the yard, or stable, throughout the year.

8. To summer fallow the heavy lands for spring corn, rather than for wheat, and to dung upon the young clovers, in preference to the fallows or the clover leys for wheat.

9. To make a liberal use of the skims or horse hoes for cleaning the fallows; and not to plough so frequently, but occasionally to plough much deeper than what is generally done.

10. To leave the fallows that are laid up for spring corn, as carefully well gripped and water furrowed as if a crop of wheat was in the ground.

11. To sow particularly early with winter or spring corn, all those light and hollow bottomed lands, which from a superabundance of straw, become abnoxious to the blight or mildew.

12. To be careful in seeding the ground, and to guard particularly against over covering the seed of white straw

crops ; to be particularly mindful that the seed of the brown straw crops is put to a proper depth in the ground.

13. To relieve the wet gravelly and sandy loams, of their surplus water, by hollow or open drains ; and to cultivate them occasionally with turnips, according to the Scotch two-furrow, or ridge practice—To leave the field well water-furrowed, and with the aid of sledges to get the crop completely from off the ground before Christmas.

14. In the operation of ploughing, to be particularly cautious in cutting the bottom of the furrow clean ; even, and of an uniform depth—To bury every weed by whelming the slice or furrow completely over ; and to guard as much as possible against unnecessary draught, by forming and exposing a fresh surface too frequently, in the preparation for turnips.

15. To pursue the dibbing and the drilling husbandry in all cases, where circumstances will admit, in preference to that of broadcast.

16. To forbear the use of the horse hoe amongst corn ; (unless the intervals are of an extraordinary width)—To hand hoe with particular caution ; and rather among white straw crops, to depend upon the weed hook, than the hoe, for the destruction of thistles.

17. To discontinue the practice of boarding the harvest men, and to put out to them by the acre, the cutting and innning of the harvest.

18. To cut wheat with some sap in the straw, rather than suffer it to be full ripe before it is reaped—By the former practice the sample will be much improved, the head corn will be saved from shedding ; and by giving it plenty of field room, it will leave the straw as freely, and be thrashed with as much ease as if it were dead ripe before that it was

sborn

shorn—By the latter practice a great deal of the prime wheat is shelled out in harvesting, and the sample is unquestionably left of a very inferior quality.

19. To avoid threshing wheat upon a clay or brick floor, not only from their want of elasticity, but from an injurious damp, that will be contracted, by the grain reducing its weight and essential value, from two and an half to five per cent.

20. To subject cows to occasional bleedings upon change of food, or when about one-third gone with calf; and among the suckling herds, when the milk gets so rich as to produce symptoms of scowering, or of surfeit in the calf; to thin it by feeding the cow with grains; and *vice versa* to thicken and enrich the milk by giving the cow a proportionable quantity of malt coombs.

21. To weigh with equal candour and judgment, the proven excellencies in the several breeds of hogs, sheep, cows, and horses, and then to stock with such a choice as on due consideration appears best adapted to the soil, the herbage, and the appropriation of the land.

22. To relieve the wet heavy woodlands of their surplus water, in the mode practised at Finchingfield; inducing thereby a more healthy timber; and a more valuable undergrowth.

23. To level the ants hills in the fresh marshes, and to cleanse out and deepen the partition drains, so that without injury to the fences, the water may be run down to a lower level.

24. To form tanks or reservoirs of rain water for supplying the inhabitants of the islands, embanked marshes, and those parts of the county which in dry seasons, labour under

under great inconveniences and distress, through the want of springs, or wholesome drinking water.

25. To enclose the farm yards in the islands, and upon all the embanked marshes; and to keep a proper stock of store cattle through the winter; to convert the large quantities of straw that are annually produced from those lands into manure.

26. To resist the monopoly of farms, or the consolidation of them beyond a certain extent—Say 300l. per annum, heavy land—500l. per annum, light lands.

27. To encourage the establishment of box clubs through every parish; and upon every occasion to stigmatize as ignominious every sturdy labourer who shall receive assistance from the parish, when he might have been relieved as a member of so laudable an institution.

To effect the purposes contained in the following propositions would certainly contribute very much to excite a general spirit of improvement throughout the county, and prove the basis of its perfect and more universal cultivation; but, as this depends entirely upon the will of the legislature, it is impossible to say, how long they may continue to withhold their authority and consent.

1. To put the occupiers of the county upon a more certain footing with regard to the payment of tythes.

2. To compel the yeoman, or the occupier of his own estate, to be as equally assessed and as fully contributory to the parish rates as the tenant farmer.

3. To subject personal as well as property in lands and houses to be proportionately assessed to the parish rates.

4. To make such an arrangement in the management of the poor, as may have a tendency to check the further increase in the poor's rates.

5. To

5. To restrain from carrying on during hay time and harvest, all such public, civil, and military works, as are not immediately connected with the safety and welfare of the nation.

6. To do away the partial burthen of supporting frontage banks—To put every level of marsh land exposed to the same hazard from the irruption of the sea, or the overflowing of land waters, into distinct districts—To make the expence of their general drainage, and defence against such calamities to be equally divided, and to have the whole under the regulation and controul of commissioners of sewers.

7. To empower the said commissioners of sewers to lower the mill dams, and the staunches of head water kept up for fish ponds, navigable rivers and canals; and further, to make such regulations touching these points, as may effectually conserve the same, without injury to the lands, through which such streams may necessarily pass.

The apparently incurable evils, under which the further agricultural improvement of the county labours, are

1. The want of a constant supply of wholesome water in the marsh islands, and in most of the lands embanked from the sea; as also upon the major part of the tough strong and deep strata of clay, in the higher parts of the county.

2. The absence of clay, chalk, or marl, in the vicinity of the greater part of the light gravelly lands, and *vice versa*.

3. The want of chalk, marl, or silicious matter, within reach of the tough strong and compact clays; and lastly,

4. To the blights and mildews, and to the insects that prey upon the roots, tender leaves, blossoms, and seeds of corn and grasses, are to be added those evils which from the fame

fame sources prove so injurious to the growth of oak and other valuable timber.

It is impossible to state with the least probable certainty, the extent of individual, and also of national benefit, that must consequently flow from a general adoption of the most perfect system of agricultural management, which the science, the soil, the climate of this island, would possibly admit of: suffice it in this place, therefore to say, that in the humble apprehension of the author of this report, such a general improvement in the agricultural econômics of this kingdom, must produce an increase in its internal resources that would be immense: upon the present occasion, he can only state what appears from the general average table, to be the extent of improvement of which this county is capable, were its common fields and wastes, under such circumstances as would admit their being improved to the same level of perfection as are the adjacent lands, which however they may be in a more advanced stage of profitable cultivation; are yet by no means so productive as they might be made, by a superior management; a truth that is very clearly illustrated in the two or three instances which occured in the progress of the survey. Upon these principles then, and according to the data deduced from the journal, and exhibited in the general average table; the extent of improvement of which this county is immediately capable (and without further skill or improvement in the science of agriculture) will stand thus:

*A general*

*A general statement of the improvement, which by enclosing and laying into severalty, may be annually made on the present rent or value of the open common fields and waste lands, in this County.*

By a reference to the minutes taken on the survey, it appears, that the arable land in about forty parishes in the county, lies very much in open common fields; and which, in point of quantity, is found to average about 1,200 acres per parish. This amounts in the whole to 48,000 acres; the excess whereof in the annual rent or value from enclosure and laying into severalty, would according to the general average table, be 4s. 6d. per acre, and consequently form an annually increased income or revenue of - - - - - 10,801 0 0

By enclosing or embanking from the sea 4,600 acres of salt marsh, an acquisition to that extent would be made to the national territory, and yield to the individual owners annually 15s. 6d. per acre, equal to 3,565 0 0

By enclosing for cultivation 10,370 acres of thicks or forest lands, unfit for the growth of oak timber, thereby improving its rent or annual value 12s. 6d. per acre - - - - - 6,481 5 0

By enclosing and laying into severalty 14,237 acres of waste or common land, thereby increasing its annual rent or value 11s. 4d. per acre, equals - 5,067 12 8  
25,913 17 8

Exclusive of the improvement that may be made upon the rough and coarse marshes and pasture land. The extent of which, not being possible to be ascertained, no account can here be stated of the value of their improvement, which however must be very considerable.

**T**H E Surveyor cannot close this report without expressing in the fullest manner, his warmest acknowledgements to the following gentlemen, who, not only in the most handsome and liberal manner, afforded and procured for him all the assistance, and information in their power, but many of them received and treated him with much attention, politeness and hospitality.

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 MR. BRAND, LANGDON HILLS,  
 MR. KEYS, ASHLEDON,  
 MR. BECKWORTH, PAKELSHAM,  
 MR. TABRAHAM, THUNDERSLEY,  
 MR. SPITTY, HORNDON,  
 MR. COKER, BOLEY.

Nor can he take his leave of the above Gentlemen, or those from whom he derived similar assistance, and by whom he was equally well received in Cambridgeshire, without expressing much concern, for that pressure of circumstances which prevented his more full and complete investigation of the subjects of the respective surveys. In the loose manner in which he has consequently been obliged to execute these inquiries and to hasten them out of hand, they have cost him for unavoidable expences only, more than two hundred guineas, over and above the one hundred and twenty-five pounds the Board of Agriculture has allowed for his indemnification of all the expences he has been put to, together with the sixteen months labour, he has so unremittingly bestowed upon the business. Lastly; under the fullest conviction of the necessity and importance of so noble a national institution; and seriously impressed with the extent and value of benefit that must result from its labours, he takes his leave of the Board of Agriculture; but not without very sensibly regretting the peculiar circumstances of his present situation, that will no longer allow him to indulge in a pursuit to which he is so fondly attached—at the same time he wishes very respectfully to assure the Board of Agriculture, no change of circumstances, can in any wise abate that desire and zeal with which he must ever be actuated, to contribute even the smallest of his very humble efforts towards furthering the truly great, and important objects of the institution.

No. 8, Arundel Street, Strand,  
March 1, 1795.

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## APPENDIX.

The following very valuable communication was made to the Surveyor by the  
REV. H. BATE DUDLEY, of BRADWELL, and is now inserted with  
the hope of obtaining some further observations.

**B**RADWELL, *near the Sea*, is a peninsular parish, at the eastern extremity of the hundred of DENGEY, on the conflux of the river *Blackwater*, which here falls into the *German Ocean*. It contains in severalty about 4,000 acres of upland, which is chiefly in tillage, and 1,500 in marshes: nearly a moiety of which is under the plough; the other part continues to be grazed. These marshes, in common with those in adjoining parishes, are under a commission of sewers, who regulate the management of the sluices, sea walls, and the fresh water courses which pass through them. The commissioners, in consequence of a general inundation from the great tide in the spring of 1791, raised the sea walls and banks, two feet more in perpendicular height, which will prove a safe barrier from any similar misfortune. The effects of the salt water, where it lay fourteen days, were not found injurious to the pasturage, nor even the tillage lands, after that year. On the south side of the parish the sea retires; and three portions of rich land were embanked from it, in addition to the glebe in 1786; the completion of which was rewarded by the Society of Arts and Sciences with their gold medal of that year. This newly acquired land, so lately salt ooze, has spontaneously thrown out the richest herbage, in which are found many of the choicest grass plants in the botanic system. About 150 acres has been gained in Bradwell, and the example is successfully adopted in the neighbouring parishes on the coast.

**SOIL.**—The soil is various; the uplands are generally a tender, sandy loam, deep in staple, and forcing in almost every kind of vegetation. The \* marshes under the plough, though stronger

\* These marshes from the many old embankments still remaining, have evidently been enclosed from the sea by successive advancements; and many of them are still divided, as the old rills, and sea water courses left them. The removal of the two large sluices on the glebe marshes, nearer the sea, on the late embankments, with straight outfalls from them, has been of great advantage to the whole level by a freer drainage of the fresh waters.  
land,

land, are not less productive: those in grass, are fine in herbage, well watered, and will fat an ox expeditiously of any weight. The various farms are in severalty, from 600, down to 40 acres each, all well fenced, wooded and watered. The *glebe*, reckoned the largest in England, is about 400 acres. Throughout this parish the finest white wheats are grown, some of which, even the present year, weighed 65lb. the Winchester bushel. The rentals have increased within these ten years from 12s. to 20s. per acre, which is now the average price on new tenures; so general is the spirit of cultivation, that there are scarcely twenty square yards of common, or waste lands throughout the parish.

CROPS.—All kinds of corn are abundantly grown here; but less of barley than any other, it being found to run so much to straw, as to produce the grain of a lean, and coarse quality. *Rape seed, coriander, mustards, white and brown, and caraway*, are likewise grown occasionally to a considerable amount.

The best course of husbandry is as follows:

- 1 Fallow for oats (if tender land with turnips.)
- 2 Clover.
- 3 Wheat.
- 4 Beans or Peas.

And if the land is in good heart, and has been cleanly hoed, another crop of wheat is sometimes taken before the next-fallow. This system is not much departed from, except towards the end of a lease. Where the soil appears tired with the repetition of *clovers*, which in that case die off in the spring, *tares* are frequently substituted in their room, and the change is found advantageous beyond the succeeding crop of wheat.

The average produce is	Wheat	32	bushels
	Oats	48	bushels
	Beans	32	bushels
	Peas	36	bushels
	Coleseed	34	bushels per acre.

The lands in high cultivation will yield one-fourth more—The marsh corn, though not so bulky on the ground, is generally better set, and weighs heavier.

HOPS have lately been introduced on the glebe, with a prospect of considerable success; the quantity and quality grown last year on twelve acres, refute the general opinion, that the sea air is detrimental to this plant.

MANURE.—CHALK RUEBISH brought in vessels from the Kentish cliffs has been the principal manure, or rather *alterative*, to the ploughed lands here time immemorially. Horse, and other dung, till within a few years, were esteemed of no value, and therefore not carted on the land.—

Eight wagon loads of chalk, value 11s. a load, without cartage, are a good dressing per acre which in fair husbandry will be productive twenty years.

The universal opinion, that land once chalked would never receive benefit from rubbish a second time, is now found fallacious by daily experience; but the stiff-soiled old chalked lands, require that the second dressing should be previously mixed with bank or other earth. No *marl*, or under-stratum of that kind, has been discovered in that parish. *Coleseed*, *buck-wheat*, and even *clovers*, are often turned in, upon old ploughed lands, and much benefit has been derived from their vegetable fermentation.

**IMPROVEMENTS.**—*Hollow-draining* has not been long practised here, but is now becoming general: the ditches are cut a rod asunder, from twenty to twenty-four inches deep, and well filled with wood and straw at from four shillings, to five shillings per score rods.—*Sheepfolding* has likewise been recently introduced, and is found highly beneficial to the pasturage, as well as ploughed lands.—Taking down the numerous pollard trees and lofty hedges throughout all the road sides, under the highway statutes in this parish, has so apparently improved the adjoining lands, by laying them open to the sun, and the free circulation of air, that the mode is generally adopted through the hundred, where the fences are now handsomely clipped low by choice, which were at first taken down by compulsion.—*Turnips* increase in proportion to the extent of land-ditching.—The *drumhead cabbage* is partially introduced for spring feed, and answers well, except where an immediate crop of Lent corn is expected to succeed; this failing as a natural consequence, confirms the general prejudice that cabbages are a more exhausting crop than is truly the fact. *Coleseed* feed is declining much, from the general experience, that it leaves the best fallowed lands in an unfavorable state for *oats* and *clover*, and is of course prejudicial to the next winter crop in succession. As an improvement pretty general in its operation, may be fairly reckoned the **ADVANCE OF RENTS**; a sure spur to industrious emulation, from which the tenantry and landlords evidently derive a mutual advantage.

**DEFECT.**—The expensive management of *cart horses* here, in common with the whole district, is a serious defect that demands immediate reformation. The ploughing, which is done by a pair of horses and one man with reins, is certainly as soundly and adroitly executed, as in any part of the kingdom; but the great expenditure of hay and oats, even at the dead season of the year, is a serious drawback from other advantages. Independently of the ordinary savings, the introduction of *oxen* on farms, where grazing and tillage are so generally blended, would prove extremely productive: but the difficulty of weaning the prejudices of a country from an old system, however erroneous, and the risque of throwing an extensive business out of its regular course, deter those who experience the loss, from attempting a reformation. Having full-aged oxen from the yoke, to graze on the spot, without the loss attendant on overdriven beasts, would give a saving of full twenty-five per cent. in addition to the advantages derived from their draught.

STOCK.

**STOCK.**—But few horned cattle are bred here. The general stock consists of *Fife/hire*, *West Highland*, and *Galloway Scots*, *North and South Wales runts*, and sometimes a lot of short-horned *Yorkshire* beasts, and of late some *Irish steers*. These are fatted off within the year; and those of superior quality and condition, within from six to nine months.—Formerly a great number of calves were fatted for the London market; but this has declined much within the last ten years.—The *Norfolk Sheep* were lately the principal flocks: but they are now succeeded by the *Southdown* breed, which are found to be a hardier and every way a more profitable race: The smaller farmers keep the *Herefordshire* breed, which are much improved by a cross of the *Wiltshire* tups.—A considerable number of the *Shropshire* and *Berkshire hogs* are grazed here on clovers for the distillers, which for the last two or three years have paid well.—Some useful *cart colts* are bred on the marshes, but these are only sufficient for the teams of the breeders.

There are two *decoys* for the different species of wild fowl, and breeding shores for *oysters*: but any detail of their management and terraqueous produce, would here be superfluous.

**WORKMANSHIP.**—The labour is principally by the piece, and is generally well executed: the wages are adequate to the price of provisons.—Ploughmen 10l. per ann. to be in the house; or 10s. per week living out, each having their harvest month made up five guineas. Day-labour is 1s. 6d. in winter and 2d. in summer without beer; the hours from six to six in summer, and from seven until dark in winter.

The *tythes* are chiefly under composition to the several farmers. The number of houses is about 100, containing somewhat more than 500 inhabitants. A *workhouse* has been lately established, which is managed, so as to lessen rates, while it affords additional comforts to the parochial poor. A useful *school* was established by a late rector, for the education of the children of inhabitants endowed with land in *Mile-end* value 60l. per annum

The parish has increased much in population within the last seven years, so that it depends no longer on the casual visitation of strange husbandmen to get in its harvest. The roads from the worst, may now be classed amongst the best in the kingdom.

## QUERIES

PROPOSED BY THE

## BOARD OF AGRICULTURE.

TO BE ANSWERED BY INTELLIGENT FARMERS.

## QUERY

1. **W**HAT is the nature of the soil and climate in your neighbourhood?
2. The manner in which the land is occupied, and whether the farms, are, in general, small or great?
3. The manner in which the land is employed, whether in pasture, in husbandry, or a mixture of both?
4. If in pasture, what grasses are cultivated? what species of stock is kept? Whether the breeds can be improved, or whether new breeds ought to be tried.
5. Whether any of the land is watered, and whether any considerable extent of ground is capable of that improvement?
6. If the land is employed in husbandry, what are the grains principally cultivated?
7. What is the rotation of crops? and in particular whether green crops, as turnips, clover, &c. are cultivated, and how they are found to answer?
8. Whether fallowing is practised or otherwise?
9. What manures are made use of, and whether particular attention is paid to the making of dung-hills?
10. What are the usual sorts of ploughs, carts, and other implements of husbandry?
11. Whether oxen or horses are made use of?
12. What is the usual seed time and harvest?
13. Whether the land is inclosed or in open fields?
14. What advantages have been found to result from enclosing land, in regard to the increase of rent—quantity or qualities of produce—improvement of stock, &c?

15. What is the size and nature of the enclosures ?
16. Whether inclosures have increased or decreased population ?
17. Whether there are any common fields, and whether any division of them is proposed ?
18. What is the extent of waste lands, and in what manner are they at present depastured ?
19. Of what improvement are those waste lands most capable, whether by being planted, converted into arable, or into pasture land, or by correcting the present mode of commonage ?
20. What is the rate of wages, and price of labour, by the day or the piece, and what are the hours at which labour commences and ceases, at the different seasons ?
21. Whether proper attention is paid to the draining of land, particularly the fenny part of it, and what sorts of drains are commonly made use of ?
22. Whether paring and burning is practised, and how it is managed and found to answer ?
23. Whether the country is well wooded, and under what system are the woodlands kept ?
24. What is the price of provisions, and whether the price is likely to be steady, to rise, or to fall ?
25. What is the state of the roads both public and parochial, whether they are in good order, and whether any improvements in regard to making roads have been discovered ?
26. What is the state of farm houses and offices, whether in general they are well situated and properly constructed ?
27. What is the nature of the leases commonly granted, and what are found to be the most advantageous covenants between the landlord and tenant, for the improvement of the ground ?
28. To what extent have commerce or manufactures been carried on in the district, and have they had either good or bad effects on its agriculture ?
29. Are there any practices in agriculture within the county that could be of service to other counties ?
30. Are there any societies instituted in the County for the Improvement of Agriculture ?
31. Whether the people seem to have a turn for improvement, or how such a spirit could best be excited ?
32. What improvements can be suggested either in regard to the stock or the husbandry of the County ?
33. Are there any obstacle to Improvements, and what manner can they best be removed ?

## ANSWERS to the QUERIES of the BOARD of AGRICULTURE.

*To Mr. VANCOUVER from the Rev. C. ONLEY, Stifted, Essex.*

1. THE climate good, many small rivulets running into the Pant, alias Blackwater, at the bottom of Stifted and Pattiswick, through about fifty acres of meadow ground, subject to floods.
2. In farms from 50*l.* to 200*l.* per annum, chiefly nearer to, and some even beneath the former sum, at from 10*s.* to 15*s.* per acre, an average of 12*s.* per annum, is as much, as with parochial charges, the soil will to an improving tenant admit.
3. Almost entirely in the best mode of common husbandry.
4. Scarcely any natural upland pasture. No species of stock bred; sheep, ewes in lamb, or young wethers, or a few bullocks annually bought, fattened and sold; small dairies, of no particular breed.
5. The watering unknown, but some land probably capable of it.
6. All the usual grain and pulse, at the average rate of  $2\frac{1}{2}$  quarters of wheat,  $4\frac{1}{2}$  of barley, 4 of oats, 3 of beans, and  $2\frac{1}{2}$  of peas per acre per annum.
7. The rotation is fallow, barley, clover, wheat, then according to the nature of the soil (which here varies from field to field, some clay, much moist brick earth, light wet loam, and some dry) may, according to the quantity of stock essential to the annual consumption for the farm, (for winter grazing merely never answers) beans, peas, winter tares, or turnips, very small portions proper for the latter, as they can neither be fed upon, nor carted off, without prejudice to the future crop; wheat and barley are the staple corn, as tares and clover are the vegetable crops; oats, beans and peas, and turnips, occasional ones.
8. Fallowing is thought essential, especially for barley, by lease is required after two crops of corn, and one either of pulse or herbage, under a tenant of capital intelligence, industry, and integrity. The fallow by the alternation of an hoeing pulse with a feeding vegetable, after a corn crop, might, with perfect justice to the soil, and security to the landlord, here be longer deferred.
9. Having no navigable communication with any sea port for chalk or lime, these come too dear for any general or material use, though necessary as manure, which is almost entirely what is merely raised by the stock, kept chiefly in winter, mixed occasionally with earth on the sides of the field. This a motive for fallowing, as remedying the want of manure, and correcting, what *hand-boiling* will not do, the weeds raised by such manure.
10. The Norfolk wheel and foot plough with only two horses; four horses sufficient in the above culture, allowing ten acres for natural pasture, for ninety acres in the farm. Light narrow-wheel waggons; small low, as well as large carts, with wheels of six to nine inches breadth; a double breasted plough to earth up.
11. No oxen used in such farms, and small inclosures probably not eligible.

12. Wheat in September; barley, beans and peas in February; oats, March; begin to be sown and to be reaped and mown in August.
13. Very old inclosure, so much so, as now to require enlargement.
14. It is conjectured, that blight and smut are increased by want of air.
15. From six to twenty acres, more nearer the former, surrounded with trees.
16. The population always considerable in part, perhaps from this.
17. None.
18. In Pattiswick a fine down common, under the manorial right of the Bishop of London, of about 100 acres.
19. Scandalously abused by the adjoining farmers laying dung, and breaking up the turf every where to mix with it, and consequently a nice farm, or fine sheep pasture, to the prejudice of the poor, who have in general right of herbage, grossly plundered and destroyed.
20. A good labourer gains at least 8s. per week, the year round, beer included, more if working as much is frequently done, when convenient on both sides, by the piece; this varies as to the depth, breadth, or quantity. Land-ditching, a furrow ploughed, then two spade deep, one spade with the small land ditch-spade, cleansed at this bottom with the scoop, filled with straw and wood; levelled at 3s. 6d. per score rods; ditching four feet wide, three feet deep, and hedging it 1s. 2d. per rod, beer included. 2s. 6d. per acre mowing good grass. Barley 2s. oats 1s. 6d. beans 5s. 6d. peas 5s. wheat 6s. haulm wheat stubble 2s. 6d. hoeing by hand beans twice 9s. peas, if twice 7s. wheat once 5s. turnips twice 7s. My constant labourer at 8s. per week, exclusive of house and garden, and some trifling benefit with a wife, who, when spinning can be got, and at a tolerable rate, may earn 4d. per day, an eldest girl 3d. a boy, occasionally under his father 4d. and three more, too young for any earnings, cost him in maintenance 10s. per week, at the lowest.
21. Draining, as mentioned above, here essential and well understood.
22. Paring and burning totally unknown.
23. Numerous woods, though gradually lessened, when well attended to, in griping, ditching, and planting ashes, and the underwood thus running to hop poles, pay clear at twelve or fourteen years growth, from 7s. to 10s. per acre per ann. and in some places 14s. the timber therefore, in them in general a prejudice: It is far from growing very large, forty feet, a well grown old tree, top and bark included, the buyer falling, it sells at 2s. per foot.
24. The best mutton, pork, veal, lamb, 5d. per lb. beef  $4\frac{1}{2}$ d. per lb. inferior in quality and joints, somewhat less; butter 9d. per lb. cheese 5d. per lb. pickled pork 7d. per lb. not any prospect of those high prices lowering: good bread, the finest flour and pollard bran taken out, scarcely ever at 1d. per lb. the poor esteem this, though dear, heartiest, and is cheapest; but the heartiest and cheapest bread, and what, to enforce its use, should probably be alone assized, is from wheat excellently ground, and nothing taken out; this might be sold at 1d. per lb.
25. The principal roads in each parish very tolerable; might be hereabouts so very good, as nearly to spare turnpikes, if the magistrates would but enforce the laws for the ditches to be well scoured, the hedges kept low, and all pollard trees in these, adjoining each principal road, removed: But in their attention to the Road Act they are strangely negligent.

26. Many of the farm houses were old mansions too large, and encumbered with buildings, and smaller being laid to the principal farm, they are frequently not well situated, nor constructed comparatively with a modern planned farm house.
27. The best leases run from fourteen to twenty-one years, and allow two corn crops. 1st, Of hoeing pulse or turnips, and 2dly, Of pasturage, and then a fallow; in addition to these, winter tares, sown immediately after wheat, is not regarded as any interfering crop, if in spring fed off. Repairs best done by the tenant, the landlord allowing materials.
28. A large baize manufactory, for some years, and particularly of late, declining, has been very long established; from its necessary consequence, a large population must have early contributed here to agriculture, but now has equally contributed to its burthens, by an enormous poor rate, which scarcely, in any tolerable degree, affords food or cloathing for this number. Chained to parishes by the act of settlement, where employment cannot be had; and through hazard of granting parochial certificates, incapable, when willing to migrate, where their labour is wanted, and would afford them the common comforts of life. Could the act of Elizabeth, which requires each parish to provide materials for the constant employment of its poor been enforced, industry would have its due maintenance: but this seems only practicable in hundreds, or districts, or large towns; in which the capital raised, the number assembled, and the economy and skill of the superintendence applied, can render such a family a manufactory within itself; and liberate the individuals composing it, from the very fluctuating trade, partial treatment, unequal payment, and arbitrary power they must submit to when dispersed into separate small parishes, and dependent on the neighbouring manufacturers. The adding farms together, in order to lessen the expence of repairs on numerous buildings, and to secure rent, with probably a just view, from the larger capital vested, of greater improvement, has certainly here contributed *somewhat* to a more dependent poor; since in such small business (a motive and sort of reward for parsimony, to save enough to engage in) the family could not apply to the parish without ruin. It would struggle therefore to the utmost; every child would be domestically employed, and thus earn its present bread, and prepare for its future hopes of becoming a skilful farming servant; and thus in treading in its parent's steady track, another little farmer, and the reputable independent master or mistress of an industrious family. The number of the people has not, on this account been in the least probably reduced, but their morals have been greatly injured; the children of the cottagers being early trained to bad language, every petty theft, and totally divested of those examples that might habituate them to any duty of neatnes and decency, exclusive of morality and religion. A national revenue too raised on the vices of the populace, by petty shops and petty alehouses, removes the little chance, by their temptations, of any parsimony or decorum. The necessity of labour may be promoted by the expensive cravings of vice: but then industry is purchased at a rate desperate to the individual, and dangerous to the community.
29. The practice in agriculture here being extremely old, have nothing *particular* to recommend them to other counties.
30. An agricultural society has very lately been established.

31. Tolerably thriving under the old mode of culture, they are not eager after improvements, but not obstinate against them.
32. There does not seem to be any county stock of any species of cattle; all supposed to be better purchased from other counties. Whatever may be wanted in their husbandry will be suggested best by gentlemen using those instruments, particularly shims and scuffles, which are not too complicated for *common use*, and which may lessen the necessity or expence of fallowing.
33. No other obstacles than may arise from the restraint of leafes, the nature of copyhold and leasehold tenures, and the very fluctuating burthen even of compounded tythes. The utmost freedom in the tenure of their land is the only mode of encouraging a free nation to be good husbandmen.
34. The best mode of feeding horses is by mowing clover, ray grases, and especially tares; the winter, mixed with rye; the spring, tares, with oats, and feeding in the stable, or open yard, with racks, or cribs, at 2s. 6d. per horse per week: it is conjectured, an acre thus used, amounts to 5l. and the manure thus collected, may equal the mowing and carting. In winter, cut chaff, two parts straw, and one of hay, either natural, or clover, or tare, with a few oats, is one of the best. Carrots admirable; but not here to be got reasonable enough, and requiring, on this soil, too much delicacy and expence of culture, for farmers to venture on raising them. Potatoes have never been raised here on a farming principle; cabbages very few; turnips the staple winter provender.
35. The number of assed houses in Stifted is thirty-two; average of inhabitants 550; varying extremely as farms change their occupying families; poor's rates, at the rack rent, of 4s. 6d. per pound; compounded tythes lately raised from less than 200l. to 430l. per ann. The farmers totally unaccustomed to the payment of tythes in kind will here submit to nearly any, the most oppressing composition, whereas by submitting to it, they deprive themselves and landlords, of a fair counterpoise to this dead weight on husbandry; to some just restitution on this English *taille* in the means of saddling the tythes on a rack rent proportion, with a full share of the land-tax, poor, and other rates in Stifted; these would have amounted on the tythes and glebe, to full 200l. per ann. The number of assed houses in Pattiswick is 10; of inhabitants 220. Tythes generously compounded. Without some permanent composition of tythes, not at all difficult, unless in the *political* alliance, the church ought to control the state, all attempts at great and general agricultural improvements, are worse than nugatory. Within these few weeks, three or four shims, to fix on to the blocks of the wheel plough, have been used in this neighbourhood, for cleansing bean and pea etches, done by hand-hoeing at 7s. 6d. per acre. They answer thus on *ploughed fallows*, but our soil so hardens in dry weather, and so quickly runs foul with strong weeds, (unless used *instantly*, that peas and beans are carted) as to render this useful instrument, on the present trials, ineffectual. A Norfolk roll with projecting cylinders, to draw drills for sowing wheat is going to be tried; not likely to answer on our soil: dibbling wheat certainly would on some of it, as Cook's drill has in a very few spots; but there is a notion here that thin sowing promotes the mildew.

## OBSERVATIONS on Mr. VANCOUVER's QUERIES.

By the Rev. Z. BISKE, of Widdington, Essex.

1. **M**OSTLY a clay, with small tracts of gravel and chalk.
2. Chiefly by tenants—Farms vary much in size—from 40 to 350 acres.
3. A mixture of both, though the pasture, which is in general in itself poor, and besides little attended to, bears but a small proportion to the land employed in husbandry: pastures may be worth on an average 16s. per acre; arable inclosed 14s. arable open field 10s.
4. Some little faintfoin.—Flocks of the mixed Hertfordshire and Western breed.—Wool, the great object with the farmers.—Few or no sheep fattened.—Mr. Chiswell has a flock of Norfolk, which as he has much ornamental ground laid down in pasture (though it fwards *very indifferently*, being mostly on a clay soil) answers well.—Cows on the smaller farms chiefly Welsh; on the larger, middle sized Derbyshires.—Not famous.—Dairying mostly, practised. Cows cannot be computed on an average to yield a neat profit of I believe more than 4l. 10. per annum.—No peculiar diseases.
5. None watered, and but small extent capable of that improvement.
6. Wheat, barley, peas and oats, mixed and clean, with some little rye.
7. The produce should be computed on a term of three years: the system of farming being as it were confined by reason of the open field, to a constant unvaried succession of two crops and a fallow, fore crop, wheat or barley; mostly alternate every three years. Produce wheat, from two to three quarters per acre; barley three to four; etch crop, generally mixed peas and oats, an uncertain crop: average produce about three quarters per acre; or sometimes clean peas or clean oats, then fallow, and so on. Turnips, clover, tares, much sown by the flock masters, with some little coleseed and rye, though indeed tares are yearly becoming more universally general; all answers well with good husbandry.
8. Answered in the foregoing.
9. Dung and earth, separately or turned over together, folding by the flock owners: active farmers very attentive.
10. Much the same as in the neighbourhood of London.
11. Horses without exception.
12. Wheat per acre on the fallows two bushels one peck; on what little clover lands are sown three bushels, sown at Michaelmas, or as soon after as possible; barley four bushels, middle of March; peas two bushels as soon after Christmas as the land will work; then two and a half bushels of black oats, harrowed in the beginning of March; clover seed from twelve to fourteen pounds: harvest beginning of August.
13. In Debden mostly enclosed; in the other parishes larger proportions of open field lands.
14. No inclosures here taken place.
15. Vary from two to twenty acres.
17. No divisions proposed.
18. Very little waste land.
20. A shilling per day and beer; 14d. without; labour per grate, varies; land ditching at 1½d. and 2d. per rod; hedging and ditching one spit dry 3d. per rod.
21. Much attention paid in the heavy lands to land ditching, the greatest improvement of which, they are yet found capable; land ditches drawn generally a rod asunder, mostly ploughed out

out deep with a common plough and three horses; and one spit only dug with the narrow or tongue spade, and then filled up with haulm or straw only, wood being a very scarce and expensive article in an open field country: but these are very liable to be trod in by the horses in ploughing, and consequently frequently blown; this done at 1s. per rod, will last in sound land fifteen or sixteen years. Soundest mode to plough and dig two spits, and fill with wood, straw, or haulm; this done at 2d. per rod; depth from surface about twenty inches, and will last from twenty to twenty-five years in sound land.

22. Nothing of the kind practised.
23. Woods well attended to; quantity small; cut at twelve years growth, worth at the stub about 8l. per acre; consist of ash, fallow, hornbeam, hazel, and thorn.
25. Generally getting into good order.
26. Mostly well situated with regard to the enclosures. Common field lands very inconveniently disposed, frequently in very small pieces and at great distances. Houses chiefly built of lath and plaster. Great number of *outbuildings*, every farmer *anxiously eager to get all his corn housed*.
27. Generally for the term of twenty-one years, though leafes are by no means so frequent as formerly, and daily becoming less so.
28. No commerce or manufactures.
30. One at Chelmsford.
31. Active farmers, much spirit for improvement; that is, land ditching, manuring, and following well.
33. *Common field lands very great obstacles to improvement*, by reason of their uniform confined mode of husbandry, be the condition or quality of the several lands what they will. These pernicious effects too likewise, operate greatly on the enclosures, unavoidably subjecting them in a great degree to the same system. In the commons, no grasses or green crops as turnips or tares can be sown, and consequently no stock kept (at least in very few instances, and there in small degrees) except by the occupiers of the manor farms, they claiming and exercising every where over them, to the exclusion of all others, their rights of sheep-walk, over-running every thing, doing thereby much injury to their neighbours, (particularly with their dry flocks, which are driven about by a boy all summer long, to shift as they can) and little proportionate good to themselves; the small occupiers being thereby prevented varying their mode of cropping, and the latter, by the large provision of turnips, &c. required in winter and spring, in this country, much injuring themselves in their subsequent crops of barley. The commons then affording little or no sustenance. The smallness too of the pieces, consisting frequently of two, three, four, five roods, and so on, preventing in many instances, attempts at draining; and their awkward distance and disposition, considerably increasing the expence of manure, attended with much loss of time, are very considerable obstacles to improvements.
34. The tythes of Newport and Wenden in lay hands are taken in kind. The other parishes compounded for on an average at about 3s. per acre. Rife within these twenty years does not appear to have much exceeded 6d. per acre.
35. Poors rates from 2s. 6d. to 3s. 6d. in the pound on the rack rents. Population is certainly increased in all the parishes.

ANSWERS to the QUERIES proposed by the *Board of Agriculture*  
To MR. VANCOUVER,

*As they apply to the Neighbourhood and Parish of Boreham in Essex.*

1. THE soil of this neighbourhood is very variable; gravel, sand, loam, and clay, being sometimes to be found within 100 yards of each other.
2. Our lands are occupied in farms of all sizes from 10 or 12 to 300 or 400 acres.
3. And are chiefly employed in husbandry; many of our farms having only a close or two of pasture adjoining to the farm-yard, for the convenience of the cattle, that are wintered at the barn-door.
4. Our lands being chiefly arable, there is not much stock kept more than draught horses, except three or four cows for suckling, and the use of the family, and a few sheep to pick up from the fallows, under the hedge-rows, that which would otherwise be lost: but little stock therefore is bred, and of the little our farmers do rear, they are wretchedly inattentive to the breed: in short, chief of the stock, whether horses, cows, or sheep, are bought of dealers, who bring them to our markets from distant counties. The farmers are therefore induced to buy such as cost them least money, so that their lands exhibit a bad sample of stock of all kinds.

This observation relates to the generality of middle sized farms, without any meadows attached to them: not but there are farms which have the advantage of considerable portions of meadow land by the sides of our rivers and rivulets, and on those lands a larger proportion of stock is kept, and of a better quality.

5. Watering land is not at all practised or understood here, though we have some grounds capable of that improvement.
6. Wheat, barley and oats, are the grains principally cultivated, though peas and beans, and also a little rapeseed, are occasionally sown.
7. The general rotation of crops (on such lands however as are light enough for the purpose) is—1st. turnips, for which a very clean fallow is made, and the land manured; 2dly, barley or oats; 3dly, clover; 4thly, wheat, after which, when a farmer is about quitting his farm, or towards the expiration of his lease, he will take another crop of oats. And we are inclined to think that this mode of cultivation is the most advantageous.
8. The leases of this country, not admitting more than two crops of grain to be taken successively, the farmer is compelled to make a fallow every third year; but where the foregoing rotation of crops is attended to, he may be said to fallow his land every other year, for the

clover crop (or where that fails, a crop of tares) by the custom of the country is deemed a fallow, as is also a crop of peas or beans, provided they are twice well and seasonably hoed in the course of the summer.

9. Various manures are partially used; but in general the farmers depend chiefly on that which arises from their own lands: the dung from the farm yard therefore is carted out in the spring, which is carefully turned over and mixed with soil, wherever it can be spared from the sides of lanes or roads, or from the skirts of the enclosures; and sometimes a portion of lime, chalk or rubbish, is added, where it can easily be obtained: but to the poorest of our light lands, nothing is so great an improvement as clay or marl, which is generally laid on at the rate of about sixty loads to an acre; but on land particularly light, and where this business is intended to be done very effectually, eighty loads per acre is frequently laid, which is a dressing of fifteen bushels to every square rod, supposing our dung carts to hold thirty bushels. The clay is dug, the carts filled, and the clay spread on the land, at about six shillings for every twenty loads: this, as well as being an effectual and cheap improvement, is also a lasting one, as the good effects of it, are experienced twelve, fifteen, and sometimes almost twenty years afterwards.
10. The foot-plough is here used more than the wheel-plough, as being cheaper, and easier repaired; which with the waggons and dung carts, with deep buck and upright sides, and harrows and rolls of various constructions, are the usual implements of husbandry.
11. Oxen are very rarely used here for draught.
12. Barley seed time (if the weather permits) commences early in February, and it is frequently the middle of April before the oats are all sown; for our farmers (for the sake of a little more seed) are very apt to let their turnips, coleseed, or cabbages, remain too long in the ground. Wheat is sown from the middle of September to the middle of November. Harvest frequently commences the middle of July, and sometimes is not finished till the first or second week in September.
13. Our lands are all enclosed, and have been from time immemorial.
14. And our enclosures are of all sizes from two to thirty acres.
15. There is scarcely any waste land in this parish.
20. The price of labour is 1s. 6d. per day of twelve hours, from six in the morning to six at eve; or in winter, as long as it is light; but the chief of the work is done by the piece, where it will admit of being let; but the prices of work vary so much, according to situation, soil, season, and other circumstances, that it is impossible to state particulars of all kind of work. Corn is generally cut, and sometimes even housed per acre; it is threshed per quarter; wheat at 2s. 6d. barley about 1s. 6d. or 1s. 8d. and oats 1s. 2d. per quarter. Fencing is done by the rod. Land-ditching (or under-ditching) in the usual mode, is done at about 2s. 9d. for every twenty rods, though the leading ditches, which are cut deeper, and require more attention, are paid for at the rate of 2½d. per rod, or perhaps 4s. 6d. per score. Timber

is felled at 1s. 6d. per lot of fifty feet. Oak timber is stripped and felled at about 21s. per lot of bark, which consists of twenty-five fathom, or fifty yards; the coat of bark (as it is called) being set thee rinds thick, and well capped to secure it from wet.

21. Under-ditching (or as it is here called land-ditching) is very much practised, and with great success, there being no part of husbandry from which our lands receive greater benefit: indeed it is not uncommon for a farmer to extend the practice over almost the whole of his land. The ditches, when cut, are filled very differently, as the farmer has opportunity of getting materials: sometimes they are filled with straw, or haulm only, but oftener with wood and straw: green broom is much sought after for that purpose, and the lops of elm pollards are much esteemed. Straw twisted into a thick kind of rope has been used for the purpose in some parts of this county, and it is said with success.
22. Paring and burning is scarcely ever practised here.
23. This neighbourhood is plentifully wooded. The woodlands, which are generally kept in the hands of the proprietors, are for the most part cut at fifteen, sixteen, or seventeen years growth, and are more or less valuable, according to the quantity of hop poles they produce, which is the chief article worth attention, as fire wood is very cheap: owing to which, considerable portions of woodlands are cleared annually, and brought under the plough.
24. Distant from the metropolis, but little more than thirty miles; the price of provisions is consequently high, and depends in a great measure on the London markets.
25. Our roads, both public and private, are tolerably good, though with the advantages of excellent materials upon the spot, they might be kept in excellent order, were the instructions laid down in the Highway Act, fully attended to and complied with.
26. The state of farm houses and the offices, depend so much on the attention, the purse and the caprice, both of the proprietor and occupier, that it is difficult to answer this query. There are many farm houses with their out-buildings, which are properly situated, and well constructed: but here property is distributed in a variety of small portions, and the buildings on many of those little farms are in a most forlorn state.
27. The leases commonly granted, contain such a variety of covenants, that it is difficult to enumerate them: the chief aim of them however is to prevent the tenant exhausting the land, by over-cropping, or suffering the buildings to run to ruin. They point out his mode of farming, admitting him to sow only half of the arable land with grain in the same season, directing a fourth of it to be laid down with clover, or other artificial grasses, and compelling him to make a fallow of the remaining fourth part, great part of which, if light lands, he sows with turnips or coleseed for feed; and if strong and heavy, he lays up in October, or November, for receiving his barley in the ensuing spring; for wheat is not sown upon the fallows in general. Penalties are annexed to mowing twice in the same season, taking

a third successive crop of corn, or breaking up any part of the small share of pasture land, which usually falls to the lot of farms in general. Many leases do not admit of rape or cole-seed being grown, except for feed, more especially within the four or five last years of the term. At the time of granting a lease, the proprietor generally takes care to have the buildings put into proper repair; after which the tenant is bound to keep them so, and at the end of the lease to leave them in tenantable repair, being allowed rough timber on the premises, with brick, tile and lime, for so doing.

28. There is no manufacture established near this place; there is however a little yarn spun for the coarse woollens manufactured in different parts of the county by a few of the women and children, but the generality of the poor will not condescend to the employment.
29. A part of the husbandry practised in this county might certainly be introduced with great advantage into various other parts of the kingdom, where they stand much in need of improvement. To be instructed in the mode of ploughing here practised would surely be of vast utility in some of our midland counties; for instead of employing four, five, or even six horses at length, with a miserable, ill-shaped, unwieldy plough at their heels, and two men to attend them, the farmer would find his advantage, if he could be brought to do the same work with one man, a plough on a better construction, and two or at most three horses abreast. Possibly some remarkably heavy stiff lands, may in wet seasons, require the farmer to work his horses at length, in order that the land, after it is raised, may not be trampled upon more than is necessary; but in some of the midland counties this mode of ploughing is indiscriminately used, where the land is even lighter and easier to plough than a large tract of this county, in the raising of which a greater power than that of three horses abreast is seldom, if ever, exerted. Were a man to be seen hoeing his crop of wheat in the spring, he would in many counties be considered as a madman, and yet here it is very commonly practised, and found, under certain circumstances, to answer exceedingly well. A better and more cleanly way of preparing land for turnips, and also a more accurate mode of setting out the plants in hoeing, seems requisite in many parts of the kingdom. It is not much more than ten years ago, since in one of the northern counties, turnips seemed to be grown for the sake of the blade, rather than the apple; and a farmer who was boasting of a fine thick crop (for the turnips literally stood as thick as cabbage plants in the seed-bed) really thought himself laughed at, on being told that his crop ought to have been twice hoed, and the plants regularly set out nine or ten inches asunder.
30. A society for the improvement of agriculture was instituted in this county about a year ago.
31. There certainly are in this county a number of active, intelligent farmers, who have shewn a laudable spirit in the improvement of their lands, and who have spared neither trouble or expence in making experiments.
32. In an enclosed county like this, the fences of its enclosures ought to be a principal object of care and attention; but to the great discredit of the generality of our farmers (though they

they are attentive to the cultivation of their land) they are just the reverse with respect to their fences, as well as to the breed of their stock (as was before observed) and in both these respects this neighbourhood certainly stands in need of improvement. As to stock, there is indeed but little breed: but there requires some emulation to be excited among the farmers—their pride should be touched—in order to induce them to pay more attention to the breed of what little they attempt to bring up. As to fencing, our common labourers are most of them entirely ignorant of the proper mode of planting quick; and after it is planted, our farmers are quite as inattentive to its welfare: seldom do they think of weeding it, or defending it from cattle while young, so that our enclosures are generally disfigured by a fence full of gaps. When harvest is once over, the farmer thinks no more of his fences till his fields are sown with corn again; indeed it is not uncommon for the cattle to have the range of the whole farm by means of these broken gaps, which the farmer sees without the least concern whatever: and when the fences are to be mended, they indeed stop the gaps with a few dead bushes, but they never take the least pains to inlay a little fresh quick, that the fence may in time be restored.

33. There is here (as in other counties more or less) one grand obstacle to all improvement; for great as is the industry and judgment of our farmers in the cultivation of their land, still they receive so severe a check to their spirit of improvement, when they see the tythe-owner taking from them a tenth of all their produce, that it frequently puts an end to all enterprize and experiment. Perhaps in no part of the kingdom (those excepted where hops are more particularly cultivated) is agriculture carried on in so expensive a style as here; for it is not uncommon for a man, who takes a considerable farm, in the two or three first years of his lease, to expend (according to the size of his farm) 1000l. or 1200l. in the improvement of his land, in levelling, draining, fencing, cleansing rough ground, and many other expensive operations, and perhaps even giving the soil a new surface by carrying on a stratum of clay; yet all this he does without regret, and indeed under the idea and expectation of being amply repaid, so long as he is able to compound for his tythe at a moderate rate: but in a parish, where the tythe is taken in kind, or (which is nearly the same thing) where an excessive composition is demanded, in consequence of improvements, which the farmer is making at some hazard and certain expence, he is very likely to stop short and argue in this way “Would the tythe-owner be content with a composition equal to a tenth of the produce of my land in its present state, I should then exert myself, and lay out my money with pleasure, because I should be able to consider as my own all the extra produce arising from my land in consequence of my diligence and the money I expend; but if he is to reap the benefit of all this, and rob me of a tenth part of the produce of my improvements (which perhaps after all may be the whole of my net profit) I will remain quiet, run no hazard, and content myself with barely ploughing and sowing my land in its present state, for I never will submit to the tythe-owner taking from me a tenth of all the money I expend, as well as of my additional labour.” This is  
a very

a very probable, as well as a very fair and rational argument for a farmer to use, who in many instances, makes his improvements and lays out his money at considerable hazard—the expence of his experiments is certain—the event of them is uncertain. Should they not fully answer his expectation, and only partially succeed; in that case, even if his improvements are not tythed, he loses his time, his labour, and in part his money: but if his tythes are taken in kind, although the farmer himself is a loser by his experiments, still the tythe-owner is more or less a gainer—he gains an addition to his tythe, which cost him nothing to obtain, whilst the farmer is deprived of a tenth of his additional produce, the whole of which would neither have repaid him his expences, nor made him amends for his trouble. Thus tythes taken in kind, (here more especially, where agriculture is carried on at so great an expence) are not only injurious to the farmer, but are every day becoming a great grievance to the public; inasmuch as they discourage, and frequently prevent, those experiments and improvements, by which the community would receive infinite advantage.

ANSWERS

ANSWERS to the several QUERIES respecting the Parish of *Dunmow*

PROPOSED BY MR. VANCOUVER,

Under Direction of the BOARD OF AGRICULTURE,

*By the Rev. JOHN HOWLETT, Great Dunmow, Essex.*

1. **T**HIS you have yourself doubtless acquired sufficient knowledge of by your personal enquiries.
2. Our largest farm contains about 320 acres, exclusive of woods; which contains 130 more. We have about twenty-five farms under thirty acres each. All the rest of intermediate size. But then we have several farmers who occupy three, four, or more farms a piece; but notwithstanding this, no individual holds 400 acres.
3. We have 3974 acres of cultivated arable land, 900 of pasture, and 300 of woodland. Of the pasture 500 is very good, 200 very indifferent, and 200 tolerably good. The hay from the best is frequently sold at three guineas an acre, and the feed of the after-grafts let at twelve shillings; and at that price are sometimes really cheap.
4. No particular grafts are cultivated; they are here the immediate produce of nature, varying only according to the variety of soil and situation. When arable is occasionally laid down to pasture, it is usually, I believe, by sowing rye grass and clover. I know not that our live stock is subject to any particular maladies, different from those common in the neighbourhood, which you probably informed yourself of in your personal visits.
5. I believe very little of our land is capable of being artificially watered.
6. Our principal grains are wheat, barley, oats, peas and beans; our seeds, clover, rape, and turnips; of the last a very small proportion. The average rent of our arable land may be estimated at about twelve or fourteen shillings per acre; and its produce of wheat twenty bushels, of barley and oats about four quarters, of peas and beans between three and four, of clover feed between three and four bushels, of rape three quarters. This last year the wheat was scarcely sixteen bushels, the barley little more than three quarters, and peas not four bushels, in many instances none at all.

7. Different in various parts of the parish, agreeable to the difference of soil. The lighter and better lands, are turnips, barley, clover, wheat, and then fallow—others, barley, oats and fallow. Wet and heavy land, wheat or barley, and clover for feed, and then fallowed rather late in the summer. Sometimes wheat or barley, peas and fallow. Almost, if not quite, one-third of our land is annually in fallow, excepting clover for feed, in the early months of May and June. Both turnips and clover feed answer very well on the lands of tolerably light soil; but the proportion of acres so cultivated is rather small; the annual average not exceeding sixty or seventy acres of each.
8. Partly answered in the preceding. We have no plants for dying, &c. and as to medicinal ones, I am not botanist enough to give any satisfactory information.
9. None but the common dung of stables and farm yards, excepting only the produce of the tanner's and fellmonger's yards. These are laid upon the land from fifteen to fifty cart loads, of perhaps about a cubic yard each per acre, according to particular exigencies; observing however that the last quantity is never bestowed, except when mixt with half or two thirds earth.
10. The ploughs, carts, harrows, rolls, waggons, the same with those in the neighbourhood in general which you have seen.
11. Horses entirely.
12. Harvest sometimes begins about the 20th of July; at others, not till the middle of August. Seed time is equally various, according to the difference of the season. Sometimes it commences so early as the middle of September, and sometimes in the month of October. Clover land, wheat, and forward peas, are seldom sown till the beginning of November.
13. Enclosed from time immemorial.
14. ———
15. From one acre to forty; by far the greatest part from three to twelve.
16. ———
17. None.
18. Not twenty acres in the whole parish. The greater part of the waste lands of this neighbourhood lies in the adjacent parish of Feltstead, very commonly supposed to amount to nearly 500 acres, but in fact there are only about 170. They are chiefly depastured by sheep, cows, and geese; but according to what rule, I know not. In this respect you are probably better informed than myself; as you consulted the most skilful and experienced farmer

farmer in that parish. They principally belong to the infant son of the late Sir James Tilney Long. By enclosure they would probably be of more than double their present value, the soil being in general very good.

19. By being converted into arable.
20. The best men servants for farmers from 7l. to 8l. or 9l. a year; maid servants 3l. to 4l. for ditto: servants to gentlemen considerably higher. Farmer's labourers 14d. a day; by the piece they earn from 4s. or 6s. to 9s. or 10s. per week, according as the job turns out, or in proportion to the strength or dexterity of the labourer. The daily wages have been nominally raised within these few years about 2d. in the shilling; but the annual earnings, comprehending all descriptions, young and old, strong and infirm, are perhaps not greatly advanced.
21. Fenny grounds we have very little, if any of; a very small proportion of the moory soil, and the requisite draining of it is not fully or properly attended to. The common mode of draining the wetish arable and indeed pasture land, is by means of the common Essex land ditching, which, within the last forty years, has more improved our farms than any other practice.
22. Paring and burning have, I believe, not been at all practised in this parish; very little in the neighbourhood, and these not answering expectation.
23. The proportion of woodland I have already stated, which is scarcely a fifteenth part of the whole; nor do I think it is higher in the neighbourhood in general, if indeed so high. The underwood is usually felled at about fourteen or fifteen years growth, and the annual rent from 10s. to 14s. or 15s. an acre. I know not that either the underwood or timber are subject to any peculiar diseases. The greatest enemy to the growth of the timber trees upon the poorer lands is the white moss; but I know of no particular means which have been adopted to remedy this evil.
24. The price of provisions, such as butcher's meat, flour, &c. nearly the same as in the London markets, and will probably be much dearer before next harvest for very obvious reasons. And the other necessaries of life will probably advance likewise on an average of the next seven years, from the increase of taxes.
25. The state of our more public roads is very good, excepting only the temporary effects of the late frost. Our private roads are rather bad, but are gradually becoming better. No improvement in the mode of making or repairing them, unless the laying the materials somewhat higher and rounder in the middle than formerly be deemed one. For the better  
D d prefervation

preservation of the roads, the greater part of the pollard trees in the hedges, bordering the highway, have been filled within these few years.

26. The state of farm houses you have seen ; it is, I think, tolerable, both in construction and repair, though in neither by any means extraordinary.
27. Our leases vary in point of time from nine years to twenty-one, generally in some proportion to the sizes of the farms respectively ; but the most common period is twelve or fourteen. And the advantage to landlord and tenant must be estimated accordingly. A few farms in this parish, not above three or four perhaps, are let without any lease at all ; which is manifestly, in a speculative view, highly discouraging to a spirited agriculture ; but, in fact, I cannot discern, either in this parish or the neighbouring ones, any striking difference in the cultivation and improvement of the lands, holden with and without leafes. This perhaps arises partly from the farmer's following and imitating the practice of their neighbours, and partly from a confidence in the fairness and indulgence of their landlords. But in this I will say no more, as you do not want I should reason, but merely state facts.'
28. The woollen manufacture flourished very much in this parish and neighbourhood about fifty years ago, but is now greatly on the decline, and in less than fifty years hence I am apprehensive will be totally lost. The influence of this declension on the earnings of the poor is striking. The present diminution in price of spinning work is a loss of not less than 500*l.* a year to this single parish alone. We have a small manufacture of facks, which is rather in a flourishing state ; employing, I believe, thirty hands, and has existed about ten or fifteen years.
29. None, except our mode of land-ditching, which is now pretty generally known.
30. An Agricultural Society was instituted in this county above two years ago. The greatest desideratum was thought to be an improvement in our breed of cattle ; but the subtlest ingenuity could scarcely have suggested a more effectual measure to prevent this improvement, than that adopted by the society. Premiums were proposed for the best stallion, bull, boar, ram, &c. of a certain age, bred within the limits of the county. This entirely discouraged that emulation which, without such limitation, would have immediately taken place amongst the farmers for procuring the finest of each kind that could have been found in any part of the kingdom. These obtained, one condition of granting premiums might have been, that they should be under certain restrictions, for the use of their respective neighbours. This would soon have produced a great advance towards a considerable degree of perfection in each species, and it would have fully ascertained whether it was worth while to attempt this improvement in question ; of which I am not altogether clear, especially with regard to sheep and oxen ; it being generally more advantageous

tageous to leave breeding to other counties. Our breed of sheep fifty years ago was larger and finer than at present; but not nearly so profitable to the farmer as those now brought from Norfolk and Wilts annually.

31. The people certainly have a turn for improvement, and actually do from time to time improve in their agricultural management.
32. After what is said in article 30, this requires nothing further.
33. Perhaps tythes and want of leases may have, in some particular cases, been obstacles to improvement; though I must confess that I am unable to point out proofs of the fact. The commutation for tythes I should wish for, is nearly the same with that proposed in the Agricultural Survey of Staffordshire. A navigable canal through this parish would probably be the greatest source of improvement I can at present conceive; as it might prove the means of bringing great quantity and variety of manures suited to our several varieties of soil and situation. Without this I see very little probability of any considerable advance.
34. The distinction of houses and families I have always found extremely difficult to ascertain, and perhaps were twenty persons employed to make the enumeration, their accounts would all be different. As nearly as may be the number of houses in this parish is about 325, and of families 365. The number of persons on an average of five surveys, made successively in the years 1785—87—89—91 and 95, 1663. The annual burials on an average of the last 13 years are 39, and consequently the average annual mortality one in about  $42\frac{2}{3}$ ; an indication of at least tolerable healthiness.

The poor's rates on an average of four years were, beginning at Easter,

years.	£.	s.	d.
1719	260	6	8
1731	277	11	8
1736	428	1	7
1741	402	1	6
1746	442	11	1½
1768	773	9	5
1773	847	10	8
1781	951	19	8
1785	807	16	4
1790	698	11	4

You see that during the last twelve years the three averages, of four years each, have decreased more than 100l. a year. This has been owing, I believe, to these two causes: first, a determination in the parish officers to spare their money to the utmost; and secondly, by admitting as few as possible into the workhouse; where experience has taught them, that the maintenance of the poor is much more expensive than out of it. Perhaps this circumstance alone will account for a very large proportion of the above-stated decrease. The price of provisions has all the time been greatly advancing; the natural conclusion seems to be, that the necessities of the poor have not been so well provided for. This however is not to be admitted in its full apparent extent; for it is to be observed, that in the year 1782 a putrid fever took place, and carried off three times the average number; and chiefly prevailing amongst the poor, it at once raised the rates from about 800l. to upwards of 1200l. The workhouse is, upon the whole, very well conducted. The rates will be very high this year, besides a voluntary contribution of upwards of 190l.

35. The feeding, treating, management, and working of the farmer's horses, is infinitely various, according to the temper, views and generosity of the farmers. Those who take a pride in having fine horses, feed them high and work them moderately, that they may always as it were, be ready for sale. Those who have little concern about the appearance of their horses, nor their breed, keep an ordinary sort both in size and figure, and give them just sufficient to enable them to hold their work, and often become dreadfully poor and lean. In ploughing and carting manure, they usually continue it from six in the morning to about two in the afternoon; are then taken home, fed and *dressed*, as it is here usually called, but go out no more that day, as, I believe, is customary in some parts of Norfolk and Suffolk. Our general breed of horses, in this parish and neighbourhood, is greatly improved, within the last forty years, both for the plough and the saddle.
  
36. Our tythes are commuted: the great tythes are, I believe, nearly double what they were fifty years ago, and are still moderate. The small tythes have not been advanced in the same period any thing at all before last year, when an addition of about two-thirds of the former sum was made; and now they are not charged at one-third of their real value. The rents within the same course of years have not been raised above one-eighth, and were they advanced to the utmost of which they are capable, it would not be above one-fourth, if so much; nor would it be nearly so much, if the tythes were taken in kind. I know not any thing that renders tythes more objectionable, than this disproportionate advance of the value compared with that of the lands which produce them; and nothing but

but the forbearance and moderation of the clergy can make them tolerable. As to a general commutation I know not any better than that already referred to as made in the Agricultural Return for Staffordshire. The farmers are the only persons who generally complain on this head; but if they are wise, they will never wish for their abolition; for what they now contingently get, from the moderation of the clergy, the landlords would immediately put in their own pockets, and the farmers burdened with increased rents, rates, and taxes, would feel how indiscreet were their former complaints.

F I N I S.

## E R R A T A.

- Page 15      line 5    for smaller *read* small  
16 last line    , for powers *read* progress  
17 last line    for follows *read* follow  
20      line 18    for Norfolk *read* Norfolk  
24      4    for furrows upon which *read* furrows only of, which  
25      22    for continue upon *read* attend  
25      24    for and are as follow *read* which were as follow  
28      5    for fays *read* fayes  
30      5    for that *read* which  
40      4    for corporation *read* borough  
42 last but 1    for were they not *read* were not these  
52      11    for as has also *read* as have also  
60      13    for total net profits *read* total net annual profits  
78 last but 3    for particular dry *real* particularly dry  
80      8    for the limbs *real* their limbs  
87      22    for rot in sheep *real* rot to sheep  
99      7    for that of the *real* those of the--line 11 for rleeving *read* relieving  
113     8    for 2203 of commons *read* 2203 acres of commons  
125     27    for a short instance as the Wales cows *real* for instance as the Welch cows  
129     3    for Harford *read* Hertford---line 21 for absolute *real* absolutely  
134     21    for compact *read* compactly---line 22 for tolerable *read* tolerably  
138     11    for from the beam *read* for the beam  
139 last but 2    for the field that lies nearly level drawing *real* a field that lies nearly level draw  
140     1    for requiring *read* require  
142     2    for their *read* its  
143     28    for in that of chalk *read* or that of chalk  
147 last but 2    for effect the root *read* the effects which the roots  
161     7    for lion *read* lien  
180     13    for draught *read* drought  
181     5    for from their want *read* from the want  
182     21    for from how long they may continue to withhold their authority, *read* how  
              long it may continue to withhold its authority

In speaking of the poors rates always *read* these have increased instead of they have increased.











